CONTRACT DOCUMENTS, SPECIFICATIONS
AND
CONTRACT DRAWINGS

FOR

SEWER AND WATER BOARD OF NEW ORLEANS

BROADMOOR, FONTAINEBLEAU WATERLINE
REPLACEMENT PROJECT

PROJECT ID: TM005
PROJECT NO. PW 21031

ADDENDUM NO. 1

DATE ISSUED: November 9, 2021

BID DATE: November 29, 2021 at 11:00 AM
BID LOCATION: 625 St. Joseph Street, Room 133
New Orleans, LA 70165

This addendum shall be part of the Contract Documents as provided in the Instructions to Bidders.

The following items are issued to add to, modify, and clarify the Contract Documents. These items shall have full force and effect as the Contract Documents, and the cost involved shall be included in the bid prices.

Acknowledge receipt of the addendum by inserting its number and date on the Bid Form of the Bid Documents. Failure to do so may subject the bidder to disqualifications.

This Addendum No. 1 consists of 242 pages including the title sheet and all attachments.

Addendum #1 Revised Items

Specifications

- Section 00 01 10 Table of Contents has been modified and is attached as a part of this addendum.

- Section 00 41 13 Bid Form has been modified as detailed below and is attached as a part of this addendum:
    - Unit Price Item No. C202(52)(D) Removal and Disposal of Existing Sidewalk, Driveway, Foot Lap (Concrete, Brick, Asphalt, Etc.) quantity has been revised to 1567 SY
    - Unit Price Item No. C202(52)(F) Removal and Disposal of Existing Curb and Gutter Bottom quantity has been revised to 2079 LF
    - Unit Price Item No. C202(52)(I) Removal and Disposal of Existing Asphaltic Concrete Pavement quantity has been revised to 3722 SY
    - Unit Price Item No. C203(51) Roadway Excavation quantity has been revised to 1190 SY
    - Unit Price Item No. C203(59) Geotextile Fabric for Stabilization quantity has been revised to 5638 SY
    - Unit Price Item No. C203(60) Geogrid quantity has been revised to 5617 SY
    - Unit Price Item No. C302(51) Base Course quantity has been revised to 1260 CY
    - Unit Price Item No. C502(53)(A) 2.5" Thick Superpave Asphaltic Concrete Wearing Course quantity has been revised to 8609 SY
    - Unit Price Item No. C502(53)(B) 4.5" Thick Superpave Asphaltic Concrete Binder Course quantity has been revised to 3722 SY
    - Unit Price Item No. C509(51) Cold Planing Asphaltic Pavement (2.5" Average Thick) quantity has been revised to 5299 SY
    - Unit Price Item No. C706(51) Concrete Sidewalk (4" Thick) quantity has been revised to 1016 SY
    - Unit Price Item No. C706(52) Concrete Driveway (6" Thick) quantity has been revised to 360 SY
    - Unit Price Item No. C707(59) Concrete Mountable Curb And Gutter Bottom quantity has been revised to 2376 LF
    - Unit Price Item No. C707(60) 6" Concrete Barrier Curb & Gutterbottom or Rolling Strip quantity has been revised to 33 LF
    - Unit Price Item No. CSS742(X8) Manhole Rehabilitation, Cementitious Liner, Partial Depth (2-Feet) quantity has been revised to 3 EA
    - Unit Price Item No. CSS742(X9) Manhole Rehabilitation, Cementitious Liner, Full Depth quantity has been revised to 24 FH

- Unit Price Item No. CSS742(X3)(C)(B) Sewer Point Repair Up to 12 Feet (8" at 6.1'-8.0') has been added with a quantity of 5 EA
- Unit Price Item No. CSS742(X4)(C)(B) Sewer Point Repair Beyond 12 Feet (8" at 6.1'-8.0') has been added with a quantity of 5 LF
- Unit Price Item No. CSS742(X3)(E)(E) Sewer Point Repair Up to 12 Feet (12" at 12.1'-14.0') quantity has been revised to 5 EA
- Unit Price Item No. CSS742(X4)(E)(E) Sewer Point Repair Beyond 12 Feet (12" at 12.1'-14.0') has been added with a quantity of 5 LF
- Unit Price Item No. CF-3 Saw Cut Concrete Curb, Pavement, Sidewalk, Driveway, Etc. According To Plans quantity has been revised to 395 LF
- Unit Price Item No. CF-4 Saw Cut, Wheel Cut or Spade Cut Existing Asphalt According To Plans quantity has been revised to 983 LF
- Unit Price Item No. CF-371 Manhole Cover quantity has been revised to 5 EA
- Unit Price Item No. CF-372 Manhole Frame quantity has been revised to 5 EA
- Unit Price Item No. CF-375 Manhole Repair or Vertical Adjustment Up To 6" Reusing Existing Metal Castings quantity has been revised to 4 EA

- The Davis Bacon Wage Decision dated 10/29/2021 shall replace the previous Wage Decision dated 06/18/2021. The revised Wage Decision is attached as part of this addendum.

- Section 00 73 1B WIFIA Required Clauses for Contract Documents, Version 3 dated February 2021 shall replace the previous section Version 2 dated May 2020. The revised Section 00 73 1B is attached as part of this addendum.

- Section 01 20 20 Measurement and Payment Section has been modified and is attached as part of this addendum.

- Section 33 05 34 Compression Fit HDPE Pipe Lining Section has been modified to include a new paragraph, 1.08 Submittals, and is attached as part of this addendum.

- <u>The following technical specification sections have been added and are attached as part of this addendum:</u>
  - Section 31 10 00 Site Clearing
  - Section 31 23 13 Subgrade Preparation
  - Section 31 23 16 Excavation and Trenching
  - Section 31 23 19 Dewatering
  - Section 31 23 23 Fill Backfill and Compaction
  - Section 33 01 30.03 Sewer Flow Control
  - Section 33 01 30.13 Cleaning of Sewers

- Section 33 01 30.16 CCTV Inspection of Sewers
- Section 33 01 30.73 Excavated Rehabilitation of Sewers
- Section 33 01 33.76 Cured-In-Place Pipe Lining
- Section 33 01 30.83 Rehabilitation of Manholes
- Section 33 05 00 Common Work Results for Utilities
- Section 33 05 05 Sewer Utilities Testing
- Section 33 05 09 Piping Specialties for Utility Structures
- Section 33 05 81 Metallic Castings for Utility Structures
- Section 33 31 11 Public Sewerage Gravity Piping

Plans

The plan set has been modified as follows and has been reissued in full and attached as part of this addendum.

- Sheet 1
    - Index to sheets revised:
        - Sheet 23-25 revised to be Geometric Layout Sheets
        - Sheet 26 added as Pavement Jointing Layout
        - Sheet 27, Details, sheet number revised from Sheet 24
        - Cross Section Sheet numbering revised from 101-114 to 101-110

- Sheet 3
    - Estimated quantities revised in accordance with changes in the Bid Form

- Sheet 14
    - Centerline roadway profile elevations and gutter line profile elevations revised, all sheets
    - Existing right of way elevations added, all sheets

- Sheet 15
    - Centerline roadway profile elevations and gutter line profile elevations revised, all sheets
    - Existing right of way elevations added, all sheets
    - Required 6" yard drain (to be located and installed as directed by Engineer) added at STA 104+60
    - Drainage at intersection of Vincennes Pl. and Grape St. removed from project

- Sheets 16-17
    - Centerline roadway profile elevations and gutter line profile elevations revised, all sheets
    - Spot elevations added for proposed gutter line and centerline roadway profile elevations at S. Norman C. Francis Avenue Intersection
    - Addition to legend denoting callouts for proposed spot elevations
    - Existing right of way elevations added, all sheets

- Sheets 18-22
    - Existing right of way elevations added, all sheets

- Sheets 24-25, Geometric Layout Sheets added to plans

- Sheet 26, Pavement Jointing Layout, sheet number revised from former plan sheet 23

- Sheets 101-110
    - All cross sections revised to reflect updated profile and gutterline elevations
    - Cut/Fill quantities have been generated and added to sheets

- Sheets 111-114
    - Omitted

- Sheets S1-S7
    - Sheets have been replaced with stamped plans dated 10/28/2021.

END OF ADDENDUM

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END OF SECTION

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(Owner to provide name of project and other identifying information)

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Digital Engineering & Imaging Inc. and dated: October 2021.

(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____ .

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars ($ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars ($ N/A)

Alternate No. 2 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars ($ N/A)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars ($ N/A)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

_____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

**** A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REMOVAL AND DISPOSAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C(202)(52)(C)	1895	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REMOVAL AND DISPOSAL OF EXISTING SIDEWALK, DRIVEWAY, FOOT LAP (CONCRETE, BRICK, ASPHALT, ETC.)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C202(52)(D)	1567	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REMOVAL AND DISPOSAL OF EXISTING CURB AND GUTTER BOTTOM		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C202(52)(F)	2079	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REMOVAL AND DISPOSAL OF EXISTING ASPHALTIC CONCRETE PAVEMENT		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C202(52)(I)	3722	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	ROADWAY EXCAVATION		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C203(51)	1190	CY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	UNSUITABLE SUBGRADE EXCAVATION AND SAND FILLING		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C203(58)	138	CY		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

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DESCRIPTION:	_x_Base Bid or ___Alt. # ____	GEOTEXTILE FABRIC FOR STABILIZATION		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C203(59)	5638	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	GEOGRID		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C203(60)	5617	CY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	BASE COURSE		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C302(51)	1260	CY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	TRAFFIC MAINTENANCE AGGREGATE		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C402(51)	400	CY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	2.5” THICK SUPERPAVE ASPHALTIC CONCRETE WEARING COURSE		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C502(53)(A)	8609	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	4.5” THICK SUPERPAVE ASPHALTIC CONCRETE BINDER COURSE		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C502(53)(B)	3722	SY		

Wording for “DESCRIPTION” is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	COLD PLANING ASPHALTIC PAVEMENT (2.5" AVERAGE THICK)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C509(51)	5299	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REINFORCED CONCRETE PAVEMENT (8" THICK)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C601(54)	1895	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REINFORCED CONCRETE PIPE (15" RCP)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C701(53)(F)	1500	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REINFORCED CONCRETE PIPE (18" RCP)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C701(53)(G)	30	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REINFORCED CONCRETE PIPE (24" RCP)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C701(53)(I)	480	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	YARD DRAIN SERVICE LINE (6" PVC)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C701(57)(A)	120	LF		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

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DESCRIPTION:	_x_Base Bid or ___Alt. # ____	NO. 1 STANDARD DRAIN MANHOLE		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C701(52)(J)(1)	190	FTHT		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	TYPE A CATCH BASIN ADJUSTMENT		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C702(52)(J)(2)	5	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	TYPE C CATCH BASIN ADJUSTMENT		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C702(53)(L)	14	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REHABILITATE EXISTING CATCH BASIN		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C702(53)(V)	1	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	ADJUST MANHOLE OR DROP INLET UP TO 6" WITH BRICK AND MORTAR		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C702(54)(A)(1)	35	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	CONCRETE SIDEWALK (4" THICK)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C706(51)	1016	SY		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

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UNIT PRICE FORM

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(*Owner to provide name of project and other identifying information)*

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DESCRIPTION:	_x_Base Bid or ___Alt. # ____	CONCRETE DRIVEWAY (6" THICK)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C706(52)	360	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SIDEWALK AT INTERSECTIONS INCLUDING HANDICAPPED RAMPS (6" THICK)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C706(54)	210	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	BRICK SIDEWALK		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C706(57)	21	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	RESETTING TILE STREET NAME		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C706(62)	3	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	CONCRETE MOUNTABLE CURB AND GUTTER BOTTOM		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C707(59)	2376	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	6" CONCRETE BARRIER CURB & GUTTERBOTTOM OR ROLLING STRIP		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C707(60)	33	LF		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

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DESCRIPTION:	_x_Base Bid or ___Alt. # ____	ASPHALTIC CONCRETE REPAIR		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C724(51)(A)	270	SY		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	TRAFFIC SIGN		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C729(51)	10	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REFLECTORIZED RAISED PAVEMENT MARKERS		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C731(52)	5	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	PLASTIC PAVEMENT STRIPING (BROKEN LINE)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C732(53)	95	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	4" PVC NEW WATER MAIN WITH MAIN LINE FITTINGS		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C741(51)(A)	100	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	6" WATER LINE OFFSET UP TO 24"		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C741(71)(B-01)	2	EA		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____ 12" WATER LINE OFFSET UP TO 24"			
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C741(71)(E-01)	2	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____ INSTALL SEWER MAIN (8") (0.0'-6.0') INCL. BYPASS PUMPING			
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C742(51)(A)	525	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____ PIPE LINER (CIPP 8")			
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C742(65)(C)	207	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____ PIPE LINER (CIPP 12")			
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C742(65)(E)	376	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____ MANHOLE REHABILITATION, CEMENTITIOUS LINER, PARTIAL DEPTH (2-FEET)			
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X8)	3	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____ MANHOLE REHABILITATION, CEMENTITIOUS LINER, FULL DEPTH			
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X9)	24	FH		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REPLACE EXIST. SEWER H.C. FROM NEW MAIN TO BACK OF CURB		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C742(60)	12	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REPLACE EXIST. SEWER H.C. BEYOND BACK OF CURB		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C742(63)	164	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	CUT LINER TO RESTORE EXISTING SEWER HOUSE CONNECTION (6", CIPP)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
C742(66)(B)	16	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SANITARY SEWER SERVICE LATERAL CCTV INSPECTION		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X13)	15	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SEWER SERVICE LATERAL LINING, (6" CIPP)		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X7)	15	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SEWER POINT REPAIR UP TO 12 FEET (8" AT 6.1'-8.0')		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X3)(C)(B)	5	EA		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SEWER POINT REPAIR BEYOND 12 FEET (8" AT 6.1'-8.0')		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X4)(C)(B)	5	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SEWER POINT REPAIR UP TO 12 FEET (12" AT 12.1'-14.0')		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X3)(E)(E)	5	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SEWER POINT REPAIR BEYOND 12 FEET (12" AT 12.1'-14.0')		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CSS742(X4)(E)(E)	5	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SAW CUT CONCRETE CURB, PAVEMENT, SIDEWALK, DRIVEWAY, ETC. ACCORDING TO PLANS		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CF-3	395	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	SAW CUT, WHEEL CUT OR SPADE CUT EXISTING ASPHALT ACCORDING TO PLANS		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CF-4	983	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	MANHOLE COVER		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CF-371	5	EA		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	MANHOLE FRAME		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CF-372	5	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	MANHOLE REPAIR OR VERTICAL ADJUSTMENT UP TO 6" REUSING EXISTING METAL CASTINGS		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
CF-375	4	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	EXPLORATORY EXCAVATION (0.0' - 6.0")		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-1	12	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	EXPLORATORY EXCAVATION (6.1' - 10.0')		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-2	12	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	42" COMPRESSION FIT HDPE FOR THE 43" CAST IRON WATER TRANSMISSION MAIN		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-3	2130	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	REMOVE EXISTING 43" WATER MAIN		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-4	1300	LF		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: Sewerage & Water Board of New Orleans
625 St. Joseph Street
New Orleans, LA 70165

(Owner to provide name and address of owner)

BID FOR: Transmission Main Replacement – Grape St. (College Ct.- S. Norman C. Francis Pkwy)/ Eden St. (S. Norman C. Francis Pkwy-S. Dupre St.)/ S. Dupre St. (Eden St.-Martin Luther King Blvd) TM005; PW 21031

(*Owner to provide name of project and other identifying information)*

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	42" DUCTILE IRON PIPE WITH FITTINGS		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-5	1400	LF		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	12" BLOW OFF VALVE ASSEMBLY		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-6	2	EA		

DESCRIPTION:	_x_Base Bid or ___Alt. # ____	COMBINATION CATCH BASIN		
REF. NO.	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
SP-7	6	EA		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

1-2 ADDITIONAL REQUIREMENTS

All blank spaces in this Proposal section shall be filled. A bid price shall be indicated for each bid item. Bids received without all such items completed will be considered non-responsive. The bid shall contain an acknowledgement of receipt of all Addenda in space provided. The Louisiana Uniform Public Work Bid Form & Unit Price Form (if applicable) and the amount of Deposit or Bid Bond five percent (5%) of the total amount of the proposal is REQUIRED to be submitted in a sealed envelope on bid opening date. The two (2) lowest numerical bidders have three (3) days after the bid opening (exclusive of Saturdays, Sundays and Holidays) to submit any additional information such as (Voluntary Extension Sheet, Affidavit, Economically Disadvantage Business Summary Sheet if applicable) as well as requirements of Sections 1-3 through 1-6 below. Failure to do so will render the bid non-responsive.

1-3 BIDDER DECLARATION

____ do hereby declare that _____ the only person _____ interested in this proposal and that no other person than the one _____ herein named have any interest herein or in the contract proposed to be taken; that it is made without any connection with any other person or persons making proposal for the same work and that it is in all respects fair and without collusion or fraud; also that no member of the Sewerage and Water Board or of the City Council of the City of New Orleans or any officer or employee of the City of New Orleans or of the several boards thereof, who are by law excluded from participation herein, and directly or indirectly interested herein or in furnishing bond or in any portion of the profits hereof.

_____ do hereby also declare that _____ have LOUISIANA CONTRACTOR'S LICENSE in the field of _Municipal and Public Works Construction_ _____ with NUMBER _____.

And _____ do further declare that _____ have carefully examined the annexed specifications and the drawings furnished, and personally inspected the ground and that _____ will contract to provide the necessary tools, machinery and apparatus and other means of construction, and to furnish all labor and material specified in this contract or called for by the plans, necessary to complete the work in the manner specified and within the time mentioned in the specifications and according to the requirements of the Engineer, as herein set forth.

1-4 In accordance with Louisiana Revised Statute 38:2227 the following affidavit shown on the next page must be submitted with the bid, or no later than 3 days after the bid opening (excluding Saturdays, Sundays, and Holidays). Failure to do so will render the bid non-responsive. **Please note, THE AFFIDAVIT MUST BE NOTARIZED.**

1-5 GUARANTEES

_____ guarantee that the whole of the work under this contract will be substantially completed within **240** calendar days after the date of the "Commencement of Contract Times."

In case of delay in the completion of the contract beyond the contract time of completion as determined by the Board hereby agree to pay, as liquidated damages, the sum of **Two Thousand Dollars ($2,000.00)** for each calendar day of such delay, which liquidated damages shall become due by the mere elapsing of the delay without the necessity of putting _____ in default.

1-6 EMERGENCY PROCEDURES

Contractor must furnish telephone numbers for routine or emergency telephone calls.

NAME TITLE

_____

TELEPHONE NO.:
NORMAL CALLS _____

EMERGENCY _____

STATE OF LOUISIANA
PARISH OF ORLEANS

AFFIDAVIT

BEFORE ME, the undersigned authority, duly commissioned and qualified and sworn in and for the State and Parish aforesaid, personally came and appeared _____ who after being duly sworn, did depose and say as follows:

1) He/she is the _____ (title) of _____ (company);

2) He/she has not been convicted of, or has entered a plea of guilty or nolo contendere to any of the crimes, or equivalent federal crimes, listed in Louisiana Revised Statute 38:2227, specifically: public bribery, corrupt influencing, extortion, money laundering, theft, identity theft, theft of a business record, false accounting, issuing worthless checks, bank fraud, forgery, contractors misapplication of payments, malfeasance in office.

3) The contracting entity, person or corporation whose principal(s), member(s), and /or Officer(s) have, within the preceding 5 years, not been convicted or plead guilty to, a felony under state or federal statutes, for embezzlement, theft of public funds, bribery, falsification or destruction of public records; (City Code Section 2-8)

4) The following is a list of individual partners, incorporators, directors, managers, officers, organizers, or members who have a minimum ten percent interest ownership interest in the bidding entity:

   _____(name) _____(name)

   _____(name) _____(name)

   _____(name) _____(name)

5) No other persons hold an ownership interest in the bidding entity via a counter letter.

6) None of the above named individual partners, incorporators, directors, managers, officers, organizers, or members, who has a minimum ten percent interest ownership in the bidding entity, been convicted of, or has entered a plea of guilty or nolo contendere to any of the crimes, or equivalent federal crimes, listed in Louisiana Revised Statute 38:2227, specifically: public bribery, corrupt influencing, extortion, money laundering, theft, identity theft, theft of a business record, false accounting, issuing worthless checks, bank fraud, forgery, contractors misapplication of payments, malfeasance in office.

7) He/she is not delinquent on any taxes owed the City of New Orleans or fees/charges to the Sewerage and Water Board. (City Code Section 2-8)

The following sections apply only to Public Works Contracts:

8) In accord with LA Revised Statute 38:2212.10 the entity represented herein is registered and participates in the "Status verification system" of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324(a), known as the "E-Verify" program to verify that all employees in the State of Louisiana are legal citizens of the United States or are legal aliens.

9) The entity represented herein shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

10) The entity represented herein shall require all subcontractors to submit to the contractor a sworn affidavit verifying compliance with the Status verification system.

WITNESSES:

_____ _____
AFFIANT

_____

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS

_____ DAY OF _____, 20_____.

_____ _____
NOTARY PUBLIC **Notary Id. No. or Bar Roll No.**

_____
PLEASE PRINT NAME OF NOTARY

"General Decision Number: LA20210005 10/29/2021

Superseded General Decision Number: LA20200005

State: Louisiana

Construction Type: Heavy

Counties: Jefferson, Orleans, Plaquemines, St Bernard, St Charles, St James, St John the Baptist and St Tammany Counties in Louisiana.

HEAVY CONSTRUCTION PROJECTS (Includes flood control, water & sewer lines, and water wells. Also includes elevated storage tanks in all listed parishes except Plaquemines and St. James. Excludes industrial construction-chemical processing, power plants, and refineries.)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	01/08/2021
2	06/18/2021
3	07/23/2021
4	08/13/2021
5	09/24/2021
6	10/29/2021

* CARP0729-001 01/01/2021

	Rates	Fringes
MILLWRIGHT	$ 32.61	13.39

CARP1846-006 07/01/2021

	Rates	Fringes

CARPENTER
(formbuilding/formsetting and
Piledrivers).....$ 28.29 9.97

ELEC0130-005 11/30/2020

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST. JAMES, AND ST. JOHN THE BAPTIST PARISHES

	Rates	Fringes
ELECTRICIAN (including low voltage wiring)	$ 31.65	13.13

ELEC1077-002 12/07/2020

ST. TAMMANY PARISH

	Rates	Fringes
ELECTRICIAN (including low voltage wiring)	$ 25.69	3%+9.27

ENGI0406-018 07/01/2009

	Rates	Fringes
OPERATOR: Power Equipment		
Bulldozer	$ 21.26	6.70
Mechanic	$ 23.31	6.70

PLAS0567-003 08/01/2018

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST. JOHN THE BAPTIST, and ST. TAMMANY PARISHES

	Rates	Fringes
Cement Mason/Concrete Finisher	$ 26.74	7.62

PLAS0812-003 01/01/2021

ST. JAMES PARISH

	Rates	Fringes
Cement Mason/Concrete Finisher	$ 30.91	5.40

PLUM0060-002 06/07/2021

JEFFERSON, ORLEANS, PLAQUEMINES, ST. BERNARD, ST. CHARLES, ST. JAMES (Southeastern Portion), ST. JOHN THE BAPTIST, and ST. TAMMANY PARISHES

	Rates	Fringes
Plumbers (excluding pipe laying)	$ 29.90	13.29

PLUM0198-005 09/01/2021

ST. JAMES PARISH (Northwestern Portion)

	Rates	Fringes
PLUMBER (excluding pipe laying)	$ 27.29	15.69

SULA2004-007 05/13/2004

	Rates	Fringes
CARPENTER (all other work)	$ 13.75	2.60
Laborers:		
Common/Landscape	$ 9.88	0.00
Fence	$ 11.24	0.00
Flagger	$ 8.58	0.00
Mason Tender	$ 7.25	0.00
Pipelayer	$ 9.84	0.00
PIPEFITTER (excluding pipelaying)	$ 17.52	4.51
Power equipment operators:		
Backhoe/Excavator	$ 14.42	0.00
Crane	$ 16.34	3.30
Dragline	$ 16.50	0.00
Front End Loader	$ 13.89	0.00
Oiler	$ 10.03	0.00
Truck drivers:		
Dump	$ 11.01	0.00
Pickup	$ 12.25	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is

based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Section 00 731.B

WIFIA REQUIRED CLAUSES FOR CONTRACT DOCUMENTS

The "Specification Package and Bid and Contract Language" packet is a document that includes everything that must be in the specification package as a requirement of the WIFIA program. The package provides all necessary language for WIFIA funded projects.

EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THE FEDERAL LANGUAGE PROVISIONS WITH RESPECT TO STATE OR LOCAL LAW.

Borrower-Specific Requirements

- Demonstration Cities and Metropolitan Development Act, 42 USC 3301 et seq., as amended and Executive Order 12372, 47 FR 30959, July 16, 1982
- Prohibitions relating to violations of CWA and CAA with respect to Federal contracts, grants, or loans under 42 USC 7606 and 33 USC 1368 and EO 11738, 38 FR 25161, September 12, 1973
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 USC 4601 et seq

Economic and Miscellaneous Authorities

Debarment and Suspension, Executive Order 12549, 51 FR 6370, February 21, 1986

Suggested Contract Language: Contractor certifies that it will not knowingly enter into a contract with anyone who is ineligible under the 40 CFR Part 32 to participate in the Project. Suspension and debarment information can be accessed at http://www.sam.gov. Contractor represents and warrants that it has or will include a term or conditions requiring compliance with this provision in all of its subcontracts under this Agreement.

New Restrictions on Lobbying, 31 USC 1352

Suggested Contract Language: FEDERAL LOBBYING RESTRICTIONS. Recipients of federal financial assistance may not pay any person for influencing or attempting to influence any officer or employee of a federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress with respect to the award, continuation, renewal, amendment, or modification of a federal grant, loan, or contract. These requirements are implemented for USEPA in 40 CFR Part 34, which also describes types of activities, such as legislative liaison activities and professional and technical services, which are not subject to this prohibition. Upon award of this contract, Contractor shall complete and submit to the City the certification and disclosure forms in Appendix A and Appendix B to 40 CFR Part 34. Contractor shall also require all subcontractors and suppliers of any tier awarded a subcontract over $100,000 to similarly complete and submit the certification and disclosure forms pursuant to the process set

forth in 40 CFR 34.110.

Civil Rights, Nondiscrimination, EEO Authorities

General Introductory Language

CIVIL RIGHTS OBLIGATIONS. Contractor shall comply with the following federal non-discrimination requirements:

a. Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, and national origin, including limited English proficiency (LEP).
b. Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination against persons with disabilities.
c. The Age Discrimination Act of 1975, which prohibits age discrimination.
d. Section 13 of the Federal Water Pollution Control Act Amendments of 1972, which prohibits discrimination on the basis of sex.
e. 40 CFR Part 7, as it relates to the foregoing.
f. Executive Order No. 11246

Title VI of the Civil Rights Act of 1964, 42 USC 2000d et seq

Incorporated by reference in introductory language only. No additional language.

Section 504 of the Rehabilitation Act, 29 USC 794, supplemented by EO 11914, 41 FR 17871, April 29, 1976 and 11250, 30 FR 13003, October 13, 1965

Incorporated by reference in introductory language only. No additional language.

Age Discrimination Act, 42 USC 6101 et seq

Incorporated by reference in introductory language only. No additional language.

40 CFR Part 7

Incorporated by reference in introductory language only. No additional language.

Equal Employment Opportunity, EO 11246, 30 FR 12319, September 28, 1965

*****EEO Required Contract Language. Must be included verbatim. *****

Equal Employment Opportunity Obligations Under EO 11246:

The Contractor shall comply with Executive Order 11246, entitled 'Equal Employment Opportunity,' as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60).

Contractor's compliance with Executive order 11246 shall be based on implementation of the Equal Opportunity Clause, and specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4.

During the performance of this contract, the contractor agrees as follows:

1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
2) The contractor will, in all solicitations or advancements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5) The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled,

terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

8) The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States. [Sec. 202 amended by EO 11375 of Oct. 13, 1967, 32 FR 14303, 3 CFR, 1966–1970 Comp., p. 684, EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230, EO 13665 of April 8, 2014, 79 FR 20749, EO 13672 of July 21, 2014, 79 FR 42971]

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246) located at 41 CFR 60-4.3:

1) As used in these specifications:
   a) "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   c) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
   d) "Minority" includes:
      i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2) Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3) If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an

association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4) The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
5) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7) The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
    a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
    b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available,

and maintain a record of the organizations' responses.

c) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h) Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to

minority and female youth both on the site and in other areas of a Contractor's work force.

k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9) A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11) The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12) The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as

amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13) The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15) Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Segregated Facilities, 41 CRF 60-1.8

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensuring that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. This obligation extends to all contracts containing the equal opportunity clause regardless of the amount of the contract. The term "facilities," as used in this section, means waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, wash rooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees; Provided, That separate or single-user restrooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246) located at 41 CFR § 60-4.2:

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Time-tables	**Goals for minority participation for each trade**	**Goals for female participation in each trade**
	Insert goals for each year[1]	6.9%[2]

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.
4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

<u>Participation by Disadvantaged Business Enterprises in Procurement under EPA Financial Assistance Agreements, 73 FR 15904</u>

[1] Goals can be found at: https://www.dol.gov/ofccp/TAguides/TAC_FedContractors_JRF_QA_508c.pdf
[2] Nationwide goal for all covered areas

**Note: Minimal requirement of the WIFIA program is to incorporate six good faith efforts during contract and subcontract procurement and maintain documentation of efforts. State may require additional DBE reporting.*

Contractor agrees to comply with the requirements of USEPA's Program for Utilization of Small, Minority and Women's Business Enterprises. The DBE rule can be accessed at www.epa.gov/osbp. Contractor shall comply with 40 CFR Section 33.301, and retain all records documenting compliance with the six good faith efforts. The Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the Contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

American Iron and Steel and Federal Labor Standards

American Iron and Steel Requirement

The Contractor acknowledges to and for the benefit of _____ ("Purchaser") and the United States Environmental Protection Agency ("EPA") that it understands the goods and services under this Agreement are being funded with monies made available by the Water Infrastructure Finance and Innovation Act program of the EPA that has statutory requirements commonly known as "American Iron and Steel" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement. The Contractor hereby represents, warrants and covenants to and for the benefit of the Purchaser and the EPA that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the EPA. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or the EPA to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or the EPA resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the EPA or any damages owed to the EPA by the Purchaser). While the Contractor has no direct contractual privity with the EPA, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the EPA is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the EPA.

Labor Laws and Standards

Note that the language below addresses Davis Bacon and Related Acts and incorporates the WIFIA borrower (Sewerage and Water Board of New Orleans) as an authorized representative, in accordance with the WIFIA loan agreement, to ensure compliance with this federal requirement.

Required *Contract Language.*

Compliance with Davis-Bacon and Related Acts.

(a) In any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in 29 C.F.R. § 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, provided that such modifications are first approved by the Department of Labor):

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided

in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)

(A) The WIFIA assistance recipient, [Sewerage and Water Board of New Orleans], on behalf of the U.S. Environmental Protection Agency (EPA), shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The WIFIA assistance recipient shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the WIFIA assistance recipient agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent to the Administrator of the Wage and Hour Division (WHD Administrator), U.S. Department of Labor, Washington, DC 20210. The WHD Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the WIFIA assistance recipient or will notify the WIFIA assistance recipient within the 30- day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the WIFIA assistance recipient do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the WIFIA assistance recipient shall refer the questions, including the views of all interested parties

and the recommendation of the WIFIA assistance recipient, to the WHD Administrator for determination. The WHD Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the WIFIA assistance recipient or will notify the WIFIA assistance recipient within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. [Sewerage and Water Board of New Orleans], shall upon written request of the WIFIA Director or an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the WIFIA Director may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for

all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) {no text here}

(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to [Sewerage and Water Board of New Orleans] . The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to [Sewerage and Water Board of New Orleans], for transmission to the EPA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security

numbers to the prime contractor for its own records, without weekly submission to[Sewerage and Water Board of New Orleans]).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of Sewerage and Water Board of New Orleans, EPA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the EPA may, after written notice to the [Sewerage and Water Board of New Orleans], take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees –

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the WHD Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed

pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the WHD Administrator determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and

5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and [Sewerage and Water Board of New Orleans], EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) Contract Work Hours and Safety Standards Act. The following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section shall be inserted in full in any contract in an amount in excess of
$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by § 5.5(a) or § 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards,

employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The [Sewerage and Water Board of New Orleans] shall upon its own action or upon written request of an authorized representative of the Department of Labor, or the EPA, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in § 5.1, the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the EPA shall cause or require the Sewerage and Water Board of New Orleans] to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the [Sewerage and Water Board of New Orleans], EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

END OF SECTION

SECTION 01 20 20

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

A. Refer to Proposal Form.

B. Payment shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labors, operations, and incidentals appurtenant to complete the work being described, as necessary to complete the various items of the work all in accordance with the requirement of the Contract Documents, including all costs of compliance with the regulations of public agencies having jurisdiction. The Contractor is hereby on notice that no separate payment will be made for any item not specifically called out, but that is required to properly complete the project.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

PART 4 – MEASUREMENT AND PAYMENT

4.01 SCOPE

The Total Bid Price shall cover all work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction equipment, and tools; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices bid. All work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid.

4.02 ESTIMATED QUANTITIES

All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the work, and (b) for the purpose of comparing the bids submitted for the work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. No compensation will be given for any quantities not used.

The following items are to be included in the project as no direct pay items: Temporary Signs, Barricades and Pavement Markings; Sodding; Batture Sand for Dressing; Construction Layout; Temporary Erosion Control

4.03 DPW GENERAL SPECIFICATION PAY ITEMS

Measurement and Payment: All items assigned a DPW General Specification pay item number shall be measured and paid as per the DPW General Specifications for Street Paving included as Appendix 1 of these specifications. The following items are to be measured and paid per the DPW General Specifications for Street Paving:

A. C202(52)(C) – REMOVAL AND DISPOSAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
B. C202(52)(D) – REMOVAL AND DISPOSAL OF EXISTING SIDEWALK, DRIVEWAY, FOOTLAP
C. C202(52)(F) – REMOVAL AND DISPOSAL OF EXISTING CURB AND GUTTER BOTTOM
D. C202(52)(I) – REMOVAL AND DISPOSAL OF EXISTING ASPHALT CONCRETE PAVEMENT
E. C203(51) – ROADWAY EXCAVATION
F. C203(58) – UNSUITABLE SUBGRADE EXCAVATION AND SAND FILL
G. C203(59) – GEOTEXTILE FABRIC FOR STABILIZATION
H. C203(60) – GEOGRID
I. C302(51) – BASECOURSE
J. C402(51) – TRAFFIC MAINTENANCE AGGREGATE
K. C501(54) – GEOTEXTILE FABRIC FOR PAVING
L. C502(53)(A) – SUPERPAVE ASPHALTIC CONCRETE (2.5” THICK)
M. C502(53)(B)-2 – 4.5” THICK SUPERPAVE ASPHALTIC CONCRETE BINDER COURSE
N. C509(51) – COLD PLANING ASPHALTIC CONCRETE (2.5” AVERAGE THICK)
O. C601(54) – REINFORCED CONCRETE PAVEMENT (8” THICK)
P. C701(53)(F) – REINFORCED CONCRETE PIPE (15” RCP)
Q. C701(53)(G) – REINFORCED CONCRETE PIPE (18" RCP)
R. C701(53)(I) – REINFORCED CONCRETE PIPE (24” RCP)
S. C701(57)(A) – YARD DRAIN SERVICE LINE (6” PVC)
T. C702(52)(J)(1) – NO. 1 STANDARD DRAIN MANHOLE
U. C702(52)(J)(2) – TYPE A CATCH BASIN ADJUSTMENT
V. C702(53)(L) – TYPE C CATCH BASIN ADJUSTMENT
W. C702(53)(V) – REHABILITATE EXISTING CATCH BASIN
X. C702(54)(A)(1) – ADJUST MANHOLE OR DROP INLET UP TO 6" WITH BRICK AND MORTAR
Y. C706(51) – CONCRETE SIDEWALK (4” THICK)
Z. C706(52) – CONCRETE DRIVEWAY (6” THICK)
AA. C706(54) – SIDEWALK AT INTERSECTIONS INCLUDING HANDICAPPED RAMPS (6” THICK)
BB. C706(57) – BRICK SIDEWALK
CC. C706(62) – RESETTING TILE STREET NAME
DD. C707(59) – CONCRETE MOUNTABLE CURB AND GUTTER BOTTOM
EE. C707(60) – 6” CONCRETE BARRIER CURB & GUTTERBOTTOM OR ROLLING STRIP

FF. C724(51)(A) – ASPHALTIC CONCRETE REPAIR
GG. C729(51) – TRAFFIC SIGN
HH. C731(52) – REFLECTORIZED RAISED PAVEMENT MARKERS
II. C732(53) – PLASTIC PAVEMENT STRIPING (BROKEN LINE)
JJ. C740(51) – CONSTRUCTION LAYOUT
KK. C741(51)(A) – 4” PVC NEW WATER MAIN WITH MAIN LINE FITTINGS
LL. C741(71)(B-01) – 6” WATER LINE OFFSET UP TO 24”
MM. C741(71)(E-01) – 12” WATER LINE OFFSET UP TO 24”
NN. C742(51)(A) – INSTALL SEWER MAIN (8”) (0.0’-6.0’) INCL. BYPASS PUMPING
OO. C742(65)(C) –PIPE LINER (CIPP 8")
PP. C742(65)(E)— PIPE LINER (CIPP 12")
QQ. C742(60)— REPLACE EXIST. SEWER H.C. FROM NEW MAIN TO BACK OF CURB
RR. C742(63) –REPLACE EXIST. SEWER H.C. BEYOND BACK OF CURB
SS. C742(66)(B)— CUT LINER TO RESTORE EXISTING SEWER HOUSE CONNECTION (6", CIPP)

4.04 EXPLORATORY EXCAVATION (0.0’-6.0’) (ITEM NO. SP-1)

A. Measurement: Measurement for payment for exploratory excavation will be made per each exploratory excavation performed. Payment will be made at the contract unit price for each excavated area up to six (6) feet long, no more than the width of the water line trench wide, and up to six (6) feet deep.

B. Payment: Payment for this item will be made per each exploratory excavation approved by the Engineer and will be paid at the unit price bid. The work will include excavation, backfill, labor, equipment, tools, materials, disposal of debris, and submitted documentation in accordance with the plans and specifications.

4.05 EXPLORATORY EXCAVATION (6.1’-10.0’) (ITEM NO. SP-2)

A. Measurement: Measurement for payment for exploratory excavation will be made per each exploratory excavation performed. Payment will be made at the contract unit price for each excavated area up to ten (10) feet long, no more than the width of the water line trench wide, and up to ten (10) feet deep.

B. Payment: Payment for this item will be made per each exploratory excavation approved by the Engineer and will be paid at the unit price bid. The work will include excavation, backfill, labor, equipment, tools, materials, disposal of debris, and submitted documentation in accordance with the plans and specifications.

4.06 42” COMPRESSION FIT HDPE LINE 43” CAST IRON WATER TRANSMISSION MAIN (ITEM NO. SP-3)

A. Measurement: Compression fit HDPE Line 43” cast iron water transmission main shall be measured for payment by field measurement of the linear feet installed, measured along the centerline of the pipe for the size and type of water main indicated. Ductile iron pipe and fittings used to connect HDPE pipe segments in

intermediary pits shall be measured as part of this item. Any ductile iron pipe or fittings needed to meet the limits of compression fit HDPE lining as shown on the plans shall be measured as part of this item. Saw cutting existing roadway and construction of pit excavation area shall be incidental to the unit price.

B. Payment: The actual total linear feet of water main compression fit HDPE lined and accepted, measured as stated above, will be paid at the unit price bid and shall include all labor, materials, tools and equipment necessary to compression fit HDPE line the water main of the size and type indicated. All material and construction methods required for compression fit HDPE lining the water main shall be considered incidental to the unit price, including transitional couplings, ductile iron fittings, ductile iron spool pieces, joint restraints, flanges, tie-ins to valves and existing water mains, and excavation, shoring and backfilling of entry, intermediate, and exit pits.

4.07 REMOVE EXISTING 43" WATER MAIN (ITEM NO. SP-4)

A. Measurement: Measurement for payment of removing existing 43" water main will be made per linear foot removed and accepted.

B. Payment: Payment for this item will be paid at the unit price bid per linear foot and shall include all labor, materials, tools and equipment necessary to successfully remove the existing 43" water main and backfill the excavation trench as indicated on the plans and in accordance with the specifications.

4.08 42" DUCTILE IRON PIPE WITH FITTINGS (ITEM NO SP-5)

A. Measurement: 42" Ductile Iron Pipe with Fittings shall be measured for payment by field measurement of the linear feet installed, measured along the centerline of the pipe for the size and type of water main indicated.

B. Payment: The actual total linear feet of 42" ductile iron pipe installed and accepted, measured as stated above, will be paid at the unit price bid and shall include all labor, materials, tools and equipment necessary to install the water main of the size and type indicated. All material and construction methods required for installation of the water main shall be considered incidental to the unit price, including ductile iron fittings, ductile iron spool pieces, joint restraints, flanges, tie-ins to valves and existing water mains, and excavation, shoring and backfilling.

4.09 12" BLOW OFF VALVE ASSEMBLY (ITEM NO SP-6)

A. Measurement: 12" blow off valve assembly shall be measured for payment by each for the removal and replacement of the existing 12" blow off gate valve and box, 42" ductile iron pipe with 12" welded-on outlet, 12" ductile iron pipe connecting the welded-on outlet to the new 12" blow off gate valve, and connecting the new 12" blow off gate valve to the existing discharge piping.

B. Payment: Payment for this item will be paid at the unit price bid per each constructed 12" blow off valve assembly as approved by the Engineer and shall include all labor, materials, tools and equipment. Line item includes all material and labor costs to complete the successful construction of the new 12" blow off valve assembly.

4.10 COMBINATION CATCH BASIN (ITEM NO SP-7)

A. Measurement: Combination catch basins shall be measured for payment by each for the removal of existing catch basin and replacement with combination catch basin as indicated in the plans or directed in the field and as constructed in accordance with SWBNO Standard Drawing No. 8319-D.

B. Payment: Payment for this item will be paid at the unit price bid per each constructed combination catch basin approved by the Engineer and shall include all excavation, granular bedding and backfilling. Line item includes all materials inclusive of castings and wall construction material, and labor costs to complete the successful construction of new combination catch basins.

4.11 MANHOLE REHABILITATION, CEMENTITIOUS LINER, PARTIAL DEPTH (2-FEET) (ITEM NO CSS742(X8))

A. Measurement: The work consists of the repair and adjustment of manholes, partial depth and cementitious liner by means of grout repairs to walls and benches, infiltration control, vertical and horizontal adjustment of frames and covers and cementitious lining of the interior wall Over 6" according to section 330130.83 "Rehabilitation of Manholes."

B. Payment: Payment for this item will be per each.

4.12 MANHOLE REHABILITATION, CEMENTITIOUS LINER, FULL DEPTH (ITEM NO CSS742(X9))

A. Measurement: The work consists of the repair and adjustment of manholes, full depth and cementitious liner by means of grout repairs to walls and benches, infiltration control, vertical and horizontal adjustment of frames and covers and cementitious lining of the interior wall Over 6" according to section 330130.83 "Rehabilitation of Manholes."

B. Payment: Payment for this item will be per vertical foot.

4.13 SANITARY SEWER SERVICE LATERAL CCTV INSPECTION (ITEM NO CSS742(X13))

A. Measurement: This work consists of performing CCTV inspection of designated sanitary sewer service laterals in accordance with Section 330130.16 "CCTV Inspections of Sewers".

B. Payment: Payment for this item will be per each.

4.14 SEWER SERVICE LATERAL LINING, (6" CIPP) (ITEM NO CSS742(X7))

A. Measurement: This work consists of providing cured-in-place pipe (CIPP) liners for rehabilitation of sewer pipelines according to section 030130.76 "Cured-In-Place Pipe Lining."

B. Payment: Payment for this item will be per each.

4.15 SEWER POINT REPAIR UP TO 12 FEET (8" AT 6.1'-8.0') (ITEM NO CSS742(X3)(C)(B))

A. Measurement: This work consists of the rehabilitation of sewer pipelines and sewer service laterals by means of excavation including full line replacement, partial line replacement (point repair) and line relocations according to Section 330130.73 "Rehabilitation of Sewers."

B. Payment: Payment for this item will be per each.

4.16 SEWER POINT REPAIR BEYOND 12 FEET (8" AT 6.1'-8.0') (ITEM NO CSS742(X4)(C)(B))

A. Measurement: This work consists of the rehabilitation of sewer pipelines and sewer service laterals by means of excavation including full line replacement, partial line replacement (point repair) and line relocations beyond 12 feet according to Section 330130.73 "Rehabilitation of Sewers."

B. Payment: Payment for this item will be per linear foot.

4.17 SEWER POINT REPAIR UP TO 12 FEET (12" AT 6.1'-8.0') (ITEM NO CSS742(X3)(E)(E))

A. Measurement: This work consists of the rehabilitation of sewer pipelines and sewer service laterals by means of excavation including full line replacement, partial line replacement (point repair) and line relocations according to Section 330130.73 "Rehabilitation of Sewers."

B. Payment: Payment for this item will be per each.

4.18 SEWER POINT REPAIR BEYOND 12 FEET (8" AT 6.1'-8.0') (ITEM NO CSS742(X4)(E)(E))

A. Measurement: This work consists of the rehabilitation of sewer pipelines and sewer service laterals by means of excavation including full line replacement, partial line replacement (point repair) and line relocations beyond 12 feet according to Section 330130.73 "Rehabilitation of Sewers."

B. Payment: Payment for this item will be per linear foot.

4.19 SAW CUT CONCRETE CURB, PAVEMENT, SIDEWALK, DRIVEWAY, ETC. ACCORDING TO PLANS (ITEM NO CF-3)

A. Measurement: Existing asphaltic concrete, PCC, or composite pavement, including roadway, sidewalk, driveway, curb, gutter and similar materials to be removed, shall be saw cut, to the full depth of the pavement, in straight lines to the nearest construction joint unless otherwise directed by the Construction Manager.

B. Payment: Payment for this item will be per linear foot.

4.20 SAW CUT, WHEEL CUT OR SPADE CUT EXISTING ASPHALT ACCORDING TO PLANS (ITEM NO CF-4)

A. Measurement: Existing asphaltic concrete pavement, including roadway, sidewalk, driveway, curb, gutter and similar materials to be removed, shall be saw cut, to the full depth of the pavement, in straight lines to the nearest construction joint unless otherwise directed by the Construction Manager.

B. Payment: Payment for this item will be per linear foot.

4.21 MANHOLE COVER (ITEM NO CF-371)

A. Measurement: This work consists of the replacing an existing manhole cover with a new manhole cover, Section 330130.83 “Rehabilitation of Manholes.”

B. Payment: Payment for this item will be per each.

4.22 MANHOLE FRAME (ITEM NO CF-372)

A. Measurement: This work consists of the replacing an existing manhole cover with a new manhole cover, Section 330130.83 “Rehabilitation of Manholes.”

B. Payment: Payment for this item will be per each.

4.23 MANHOLE REPAIR OR VERTICAL ADJUSTMENT UP TO 6" REUSING EXISTING METAL CASTINGS (ITEM NO CF-375)

A. Measurement: The work consists of adjusting an existing manhole frame in the horizontal direction and/or vertical direction so that every point along the top of the frame matches the elevation of the adjoining paved surface, and so that the center of the frame opening aligns with the center of the manhole. Adjustment will require adding or removing courses of bricks, grouting, replacing damaged bricks, resetting loose bricks, filling cracks and voids, infiltration control and sealing the frame-to-brick connection by applying an internal and external coat of cementitious mortar in accordance with section 330130.83 “Rehabilitation of Manholes.”

B. Payment: Payment for this item will be per each.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Stripping and stockpiling rock.
6. Removing above- and below-grade site improvements.
7. Disconnecting, capping or sealing, removing site utilities, and abandoning site utilities in place.
8. Temporary erosion and sedimentation control.

1.3 PRICE AND PAYMENT PROCEDURES

A. There will be no measurement or payment for Site Clearing.

1.4 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and as specified in dp 015639 "Temporary Tree and Plant Protection."

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and as indicated according to requirements in DPW General Specifications for Street Paving.

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.5 SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
3. Traffic control to comply with requirements of Contract Documents.

B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Utility Locator Service: Notify **Louisiana One Call** for area where Project is located before site clearing.

D. Tree- and Plant-Protection Zones: Protect according to requirements in DPW General Specifications for Street Paving.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312323 "Fill, Backfill, and Compaction."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in DPW General Specifications for Street Paving.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to Storm Water Pollution Prevention Plan and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site according to requirements in DPW General Specifications for Street Paving.

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in DPW General Specifications for Street Paving.

3.4 EXISTING UTILITIES

A. Contractor will be responsible for determining the need for and arrange for disconnecting and sealing utilities that serve existing structures before site clearing.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.
2. Contractor will arrange to shut off indicated utilities.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Construction Manager not less than **seven (7)** days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Construction Manager's written permission.

E. Excavate for and remove underground utilities indicated to be removed.

F. Removal of underground utilities is included in earthwork sections; and in applicable utilities sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove pavements, paving, curbs, gutters, and aggregate base as indicated and in accordance with Contract Documents.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property in accordance with Contract Documents.

B. Burning tree, shrub, and other vegetation waste is not permitted. Burning of other waste and debris is also prohibited.

END OF SECTION 311000

SECTION 312313 – SUBGRADE PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of preparing and inspecting the subgrade to determine if it is suitable to receive the roadway base course. Unsuitable subgrade will be excavated and replaced with new granular subbase material.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to perform all operations associated with fill, backfill and compaction of excavations and trenches.

C. Section Includes:

1. Soil Moisture Control.
2. Unsuitable Subgrade Inspection.
3. Subgrade Excavation.
4. Subgrade Sand Filling.

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020, Measurement and Payment.

B. Measurement:

1. Volume Measurement: Measurements will be made as the product of horizontal width, length dimensions and depth of material installed, measured in cubic yards. Irregular areas will be measured as a summation of equivalent non-overlapping rectangles, triangles, or other applicable geometry multiplied by the average nominal depth.

C. Payment:

1. Unsuitable Subgrade, Excavation & Sand Filling: Payment for Unsuitable Subgrade, Excavation & Sand Filling will be made at the respective Contract unit bid price per Volume Measurement as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

2. Unsuitable subgrade found within a compacted utility trench installed within this contract will not be measured for payment. Contractor will be required to remove and replace

unsuitable subgrade in accordance with this section within the limits of utility trenches backfilled and compacted as part of this contract at no additional cost to this contract.

1.4 DEFINITIONS

A. Backfill: See Section 312323 Fill, Backfill and Compaction.

B. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract unit prices.
2. Bulk Excavation: Excavation more than 10 ft. in width and more than 30 ft. in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at no additional expense to the Owner.

C. Subbase Course: Sand layer placed between the subgrade and base course for pavement.

D. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase/base, drainage fill, drainage course, or topsoil materials.

E. Unsuitable Subgrade: Where existing subgrade is not compactable or fails the inspection due to excessive rutting or excessive pumping as defined within this section.

1.5 SUBMITTALS

A. Samples for Verification: For the following products, in sizes indicated below:

1. Subbase material for testing by a testing laboratory selected by the Owner.

B. Gradation and material specifications for subbase material. Resubmit if source material changes at any time during the work.

C. Qualification Data: For qualified testing agency.

D. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. Laboratory compaction curve according to ASTM D 698 and ASTM D 1557.

E. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.6 REFERENCE STANDARDS

A. City of New Orleans, Department of Public Works (DPW) General Specifications, current edition

B. City of New Orleans, Department of Public Works (DPW) Standard Drawings, current edition

C. Louisiana DOTD Qualified Products List (LADOTD QPL)

D. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM D 698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3(600 kN-m/m^3))
2. ASTM D 1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3(2,700 kN-m/m^3))
3. ASTM D 2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
4. ASTM D 3740-12: Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
5. ASTM E 329: Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

1.7 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.8 FIELD CONDITIONS

A. See Section 312323 for required Field Conditions.

1.9 DELIVERY, STORAGE AND HANDLING

A. See Section 007300 Supplementary Conditions (Attachment No. 4) for S&WB Storm Water Pollution Prevention requirements.

1.10 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: See Section 312323 Fill, Backfill and Compaction for basic soil material requirements.

B. Satisfactory Soils: See Section 312323 Fill, Backfill and Compaction for satisfactory soils. Soil Classification Groups SW, SP, and SM according to ASTM D 2487, Groups A-3 according to

AASHTO M 145, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Clean, pumped river sand will be considered satisfactory for this specification.

C. Unsatisfactory Soils: See Section 312323 Fill, Backfill and Compaction for unsatisfactory soils.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. SUBGRADE:

1. Subgrade Material: Naturally or artificially graded mixture of natural sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve

2. Sand: Sand shall be natural or pumped sand with a maximum liquid limit of twenty-five (25) and a maximum plasticity index of six (6), free from trash, weeds or other foreign or deleterious material. ASTM C 33/C 33M; fine aggregate.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Notify the Engineer when excavations have reached required subgrade.

B. If the Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted subbase material as directed.

C. Authorized additional excavation and replacement material will be paid for according to Contract unit prices.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer and without additional compensation.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

D. Any depressions developed on the subgrade due to contractor's activities shall be filled immediately using suitable subgrade material.

E. The subgrade shall be maintained at all times to be free or ridges, ruts or other drainage impediments that may trap water.

F. Dewatering operations shall comply with Section 312319.

3.3 STORAGE OF SOIL MATERIALS

A. Comply with Section 312323 Fill, Backfill and Compaction.

3.4 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.5 UNSUITABLE SUBGRADE INSPECTION

A. Subgrade Preparation.

1. Areas of existing subgrade that have developed a hardened crust within 6-inches of the surface, the subgrade shall be scarified to a depth of 6-inches.
2. Loosened material shall be spread across the full width of the exposed subgrade and re-compacted to the required subgrades.
3. Uniformly compact the subgrade with a light weight roller (five tons).
4. Areas not compactable shall be marked as ‘Unsuitable Subgrade’.

B. Subgrade Proof Rolling.

1. Proof roll subgrade below all schedule roadway paving to identify soft pockets and areas of excessive yielding.

    a. Proof-roll subgrade in one direction.
    b. Proff-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck, loaded to 25 tons (+/- 1 ton).
    c. Limit vehicle speed to 5 mph.
    d. Perform proof-rolling during dry weather (See paragraph 3.5) and under the observation of the Construction Manager.

2. Contractor to record limits of vertical deflection, excessive rutting or pumping.
3. Excessive Rutting is defined as ½” or more of deflection without rebound.
4. Excessive Pumping is defined as ½” or more of deflection with rebound.
5. Areas with excessive rutting or pumping shall be marked as ‘Unsuitable Subgrade’.
6. Owner and /or Construction Manager reserve the right to perform additional testing in areas where existing subgrade is suspect of not being suitable.

3.6 SUBGRADE EXCAVATION

A. Unsuitable subgrades shall be excavated to a depth of 12-inches and retested as per section 3.8.

1. The limits of excavation shall extend beyond the limits of unsuitable subgrade by four feet (4-ft) in each orthogonal direction.
2. The limits of subgrade excavation shall not extend beyond the limits of work or beneath any existing paving to remain in place.
3. Subgrade excavation shall only be performed if the Contractor is immediately ready for Subgrade Sand Filling. Subgrade sand excavation shall not be left exposed overnight or during inclement weather.

3.7 SUBGRADE SAND FILLING

A. On prepared subgrade, place subgrade sand fill as follows:

1. Place the new subgrade sand fill in 6-inch lifts and compact to 95% density as per Section 312323.
2. Uniformly compact the subgrade with a light weight roller (five tons).
3. In smaller areas, the Contractor may be permitted to perform hand tamping of the subgrade.

    a. Hand tamping shall be performed using a pneumatic type tamper.
    b. Soil moisture control must be maintained as per section 3.5.

4. Proof roll subgrade to verify suitability of subgrade to receive base course and to uniformly compact and properly shape the subgrade to the lines and grades required by the roadway profile and sections.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material classification and maximum lift thickness comply with requirements.
3. Determine, during placement and compaction that in-place density of compacted fill complies with requirements.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing

subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Construction Manager.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 50 feet or less of trench length but no fewer than two tests.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; re-compact and retest until specified compaction is obtained.

3.9 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Construction Manager; reshape and re-compact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Construction Manager.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property in accordance with Contract Documents.

END OF SECTION 31 23 13

SECTION 312319 - DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes construction dewatering.

1.3 PRICE AND PAYMENT PROCEDURES

A. No Separate Measurement or Payment will be made for dewatering operations.

1.4 SUBMITTALS

A. Submit in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Shop Drawings: For dewatering system, prepared by or under the supervision of a qualified professional engineer.

1. Include plans, elevations, sections, and details.
2. Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.
3. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
4. Include written plan for dewatering operations including sequence of well and well-point placement coordinated with excavation shoring and bracings and control procedures to be adopted if dewatering problems arise.

C. Field quality-control reports.

D. Existing Conditions: Using photographs or video recordings, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by dewatering operations. Submit before Work begins.

E. Record Drawings: Identify locations and depths of capped wells and well points and other abandoned-in-place dewatering equipment.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer that has specialized in design of dewatering systems and dewatering work.

1.6 FIELD CONDITIONS

A. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

1. Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer.
2. System should include all discharge piping and connections at point of discharge.
3. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures.
4. Prevent surface water from entering excavations by grading, dikes, or other means.
5. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
6. Remove dewatering system when no longer required for construction.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction and Contract Documents.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.

1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways, if required, using approved traffic control plans by authorities having jurisdiction.

C. Provide temporary grading to facilitate dewatering and control of surface water.

D. Protect and maintain temporary erosion and sedimentation controls, in accordance with Contract Documents during dewatering operations.

3.2 INSTALLATION

A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.

1. Space well points or wells at intervals required to provide sufficient dewatering.
2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.

B. Place dewatering system into operation to lower water to 3-feet below the bottom of the excavation.

C. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.

D. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

3.3 OPERATION

A. Operate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
2. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
3. Maintain piezometric water level a minimum of 24 inches below bottom of excavation.

B. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.

C. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

D. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

3.4 FIELD QUALITY CONTROL

A. Observation Wells: Provide observation wells or piezometers, take measurements, and maintain at least the minimum number indicated; additional observation wells may be required by authorities having jurisdiction.

1. Observe and record daily elevation of ground water and piezometric water levels in observation wells.
2. Repair or replace, within 24 hours, observation wells that become inactive, damaged, or destroyed. In areas where observation wells are not functioning properly, suspend construction activities until reliable observations can be made. Add or remove water from observation-well risers to demonstrate that observation wells are functioning properly.
3. Fill observation wells, remove piezometers, and fill holes when dewatering is completed.

B. Survey-Work Benchmarks: Resurvey benchmarks regularly during dewatering and maintain an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

C. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.

D. Prepare reports of observations.

3.5 PROTECTION

A. Protect and maintain dewatering system during dewatering operations.

B. Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION 312319

SECTION 312323 – FILL, BACKFILL, & COMPACTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of performing all filling, backfilling, subgrade/subbase preparation, and compaction of excavations and utility trenches in accordance with the specifications and in conformity with the locations, lines, grades, slopes, thickness, and typical sections shown on the plans and included herein.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to perform all operations associated with fill, backfill and compaction of excavations and trenches.

C. Section Includes:

1. Dewatering.
2. Bedding.
3. Backfill.
4. Utility Trench Backfill.
5. Soil Fill.
6. Soil Moisture Control.
7. Grading.
8. Backfilling trenches for utilities and pits for buried utility structures.

1.3 PRICE AND PAYMENT PROCEDURES

A. No Separate Measurement or Payment will be made for Fill, Backfill, and Compaction where rehabilitation work is scheduled in the plans for the sanitary sewer line or sanitary sewer service lateral. The Contractor shall include the cost of Fill, Backfill, and Compaction in the associated scheduled rehabilitation method for the sanitary sewer line and sanitary sewer service laterals.

1.4 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: See DPW General Specifications for Street Paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract unit prices.
2. Bulk Excavation: Excavation more than 10 ft. in width and more than 30 ft. in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at no additional expense to the Owner.

F. Fill: Soil materials used to raise existing grades.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

H. Subbase Course: Refer to DPW General Specifications for Street Paving.

I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

J. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.5 SUBMITTALS

A. Samples for Verification: For the following products, in sizes indicated below:

1. Backfill and bedding material for testing by a testing laboratory selected by the Owner.

B. Gradation and material specifications for backfill and bedding material. Resubmit if source material changes at any time during the work.

C. Qualification Data: For qualified testing agency.

D. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. Laboratory compaction curve according to ASTM D 698 and ASTM D 1557.

E. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations and submit before earth moving begins and in accordance with Section 011380 Construction Photographs and Videos.

1.6 REFERENCE STANDARDS

A. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition

B. Louisiana DOTD Qualified Products List (LADOTD QPL)

C. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM C 33: Standard Specification for Concrete Aggregates
2. ASTM C 136: Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
3. ASTM D 448: Standard Classification for Sizes of Aggregate for Road and Bridge Construction
4. ASTM D 698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3(600 kN-m/m^3))
5. ASTM D 1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3(2,700 kN-m/m^3))
6. ASTM D 2321: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
7. ASTM D 2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
8. ASTM D 2940: Standard Specifications for Graded Aggregate Material for Bases or Subbases for Highways or Airports
9. ASTM D 3740-12: Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
10. ASTM E 329: Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

1.7 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.8 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during filling operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the Owner and New Orleans DPW.
2. Provide alternate routes around closed or obstructed traffic ways if required by the Owner or New Orleans DPW.

B. Improvements on Adjoining Property: Authority for performing filling operations indicated on property adjoining the Owner's property will be obtained by the Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Engineer.

C. Do not commence filling operations unless temporary site fencing and erosion- and sedimentation-control measures specified in Contract Documents are in place.

D. Do not commence filling operations unless plant-protection measures specified in DPW General Specifications for Street Paving are in place.

E. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

1.9 DELIVERY, STORAGE AND HANDLING

A. Delivery, storage, and handling of fill material shall meet the requirements of the S&WB Storm Water Pollution Prevention Plan (Section 007300 Supplementary Conditions, Attachment 4).

1.10 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General:
1. Provide new borrow soil materials, for all fill and backfilling operations when sufficient satisfactory soil materials are not available from excavations.
2. All fill material from on and off-site sources shall be subject to the approval of the Engineer.
3. All fill material shall be free from rocks or stones larger than 2 inches in their greatest dimension; brush, stumps, logs, roots, debris, and organic material, trash, or other objectionable material. Excess or unsuitable material as designated by the Engineer shall be removed from the job site by the Contractor.
4. All excavated insitu soil shall be removed in accordance with Section 312316 Excavation and Trenching.

B. Satisfactory Soils: Soil Classification Groups SW, SP, and SM according to ASTM D 2487, Groups A-2-4, A-2-5, and A-3 according to AASHTO M 145, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Pumped river sand is acceptable fill material.

C. Unsatisfactory Soils: Soil Classification Groups GW, GP, GM, GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, Groups A-1, A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
2. Batture sand and spillway sand are not acceptable fill materials and are deemed unsatisfactory.

D. BASE & SUBBASE: Refer to DPW General Specifications for Street Paving.

1. Density Requirements: Shall be in accordance with the following testing procedures:

MATERIAL	TEST	DENSITY PERCENT OPTIMUM
Sand Subbase	A.S.T.M. D698	95
Sand Base	A.S.T.M. D698	96
Crushed Concrete or Stone	La.D.O.T.D. 418E	95
Cold-milled Asphaltic Concrete	La.D.O.T.D. 418E	95

The density requirements for other material shall be in accordance with the requirements of the Engineer.

E. Subbase Material: Naturally graded mixture of clean natural sand (ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve) and meeting the requirements of 2.1.B such as pumped river sand.

F. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Pea Gravel: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 448; with maximum aggregate size of 3/8-inch and not more than 5 percent passing a No. 16 sieve.

I. Sand: Sand shall be natural or pumped sand with a maximum liquid limit of twenty-five (25) and a maximum plasticity index of six (6), free from trash, weeds or other foreign or deleterious material. ASTM C 33; fine aggregate.

J. Impervious Fill: Clay fill capable of compacting to a dense state. Fill shall only be used where required by OLD permit and meet the fill specification established by the USACE:

Flowable Fill Mix Design

Material	Excavatable	Non-Excavatable
Portland Cement	75 - 100 lb/cu yd	76 - 100 lb/cu yd
Fly Ash	0 - 150 lb/cu yd	150 - 600 lb/cu yd
Water[2,3]	-	-
Air[4]	10 - 35%	5 - 20%
Concrete Sand	Proportioned to yield 1 cu yd	Proportioned to yield 1 cu yd
Unit Weight (wet)[4]	90 - 110 lb/cu yd	100 - 125 lb/cu yd
28-Day Compressive Strength[4]	Maximum 100 psi	Minimum 125 psi

Water

	% by Weight (Max.)
Alkali	0.1
Solids (Organic)	0.1
Solids (Inorganic)	0.4
Salt (NaCl)	0.5
Sugar, Oil, or Acid	0.0

[1]Mix designs shall yield 1.0 cubic yard absolute volume.

[2]Mix designs shall produce a consistency that will result in a flowable self-leveling product at the time of placement and conform to the Water - Percent by Weight (Max.) Table.

[3]Water shall comply with the the Water - Percent by Weight table when tested in accordance with AASHTO T 26.

[4]The requirements for percent air, compressive strength and unit weight are for laboratory designs only and not intended for jobsite acceptance requirements unless otherwise directed by the project engineer. For early opening to traffic and expedited placement circumstances, the maximum or minimum required strength shall be attained in the desired time frame.

1. The Plasticity Index of the new fill must be 10 or more by Atterburg Limits (ASTM D4318), and the material must be classified as either CH or CI, by ASTM D2487, with less than 35% sand retained on the No. 200 sieve by ASTM D1140.
2. The backfill material must have organic content of no greater than 9%, as determined by ASTM D2974, Method C.
3. Backfill Material must be placed in 6inch lift for the first layer and 12 inch lifts for the succeeding layers and must be compacted to the 90% Standard Proctor ASTM D698.
4. Backfill Material is to be used only where excavation extends into a levee “theoretical section” or otherwise as directed by the Engineer.

K. Excavatable Flowable Backfill: self-compacting sand/cement mixture designed for a low compressive strength of 100 psi and shall be used when required for backfill within LADOTD right of way limits and conforming to the tables below.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify site conditions are ready to accept earth moving operations. Perform any required demolition or site clearing operations within the plan limits and within any limits placed by applicable project permits.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

D. The Contractor shall at all times during construction provide and maintain proper equipment and facilities to remove all water from excavations.

E. Dewatering operations shall comply with Section 312319.

F. All pumping and drainage operations of sanitary sewage shall be performed in accordance with Section 330130.03 Sewer Flow Control.

3.3 SUBGRADE INSPECTION

A. Notify the Engineer when excavations have reached required subgrade.

B. If the Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Authorized additional excavation and replacement material will be paid for according to Contract unit prices.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer and without additional compensation.

3.4 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.5 BEDDING

A. The Contractor shall deposit crushed stone for pipe bedding, or crushed stone for excavation below grade, directly on the bottom of the trench immediately after excavation has reached the proper depth and before the bottom of the trench has become softened or disturbed by any cause.
   1. Bedding material shall meet the requirements designated on the drawings and in accordance with ASTM D 2321.

B. The Contractor shall place the crushed stone bedding in layers not exceeding 12 inches in thickness and compacted to 95% the maximum dry density in accordance with ASTM D 1557.

C. The minimum thickness of bedding below the pipe shall be 6 inches. The bedding material shall extend upward from the excavation bottom along the haunches and sides of the pipe up to a distance of 6 inches above the pipe.

D. Compaction shall be achieved by mechanical means such as a vibratory plate or other devices approved by the Engineer.

E. The Contractor shall install filter fabric around the bedding and under the backfill in accordance with DPW General Specifications for Street Paving and the Owner's standard detail drawings, current edition. The filter fabric shall overlap at the top of the bedding the full width of the trench and shall be secured to each side of the trench.

3.6 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

   1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for Record Documents.
   3. Testing and inspecting underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring, bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

C. As soon as practical after the pipe has been laid and jointed and bedding material has been installed and compacted, the Contractor shall begin backfilling expeditiously.

D. Where the pipes are laid in areas without a pavement covering, the Contractor shall fill the remainder of the trench with select native material mounded 6 inches above the existing grade or as directed by the Engineer. Where a gravel or similar surface exists prior to excavations, it shall be removed, conserved and replaced to the full original depth as part of the work by the Contractor.

E. Where the pipes are laid in streets, driveways and sidewalks, the remainder of the trench up to the depth of the bottom of the base course of the specified paving shall be backfilled with sand material as specified herein in layers not to exceed 6 inches for mechanical compaction and three 3 feet for compaction by flooding. The backfill shall be thoroughly compacted as specified herein.

F. To prevent longitudinal movement of the pipe, dropping or dumping backfill material into the trench will not be permitted.

G. Backfill shall be brought up evenly on all sides. Each layer of backfill shall be uniformly compacted to 95% of the maximum dry density near optimum water content in accordance with ASTM D-1557.

H. All roadway, driveway and sidewalk surfaces shall be swept and hose-cleaned immediately after backfilling by the Contractor. Dust control measures shall be employed at all times by the Contractor

3.7 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Roadways: The Contractor shall conform to the Owner's standard drawings, current edition.

D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of approved soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

   a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

G. Subgrade Preparation:

1. Compacted backfill within the utility trench shall meet the requirements in DPW General Specifications for Street Paving. Any required replacement of unsuitable subgrade within the utility trench will not be paid for.

3.8 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under sidewalks within an established tree canopy, use a pea gravel soil material.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.9 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.10 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment and not more than 6 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of pipe and conduit to required elevations and uniformly along the full length of each pipe.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698 and ASTM D 1557:

1. Under pavements, scarify and re-compact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under turf or unpaved areas, scarify and re-compact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

D. Excavations shall be backfilled to the original grades or as indicated on the Drawings. Deviation from this grade because of settling shall be corrected. Backfill operation shall be performed to comply with all rules and regulations and in such a manner that it does not create a nuisance or safety hazard.

3.11 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch
2. Walks: Plus or minus 1 inch
3. Pavements: Plus or minus 1/2 inch

3.12 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. Prepare subgrades in accordance with DPW General Specifications for Street Paving.

C. On prepared subgrade, place subbase course and base course under pavements and walks in accordance DPW General Specifications for Street Paving.

D. Pavement Shoulders: Place shoulders along edges of subbase course and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.13 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material classification and maximum lift thickness comply with requirements.
3. Determine, during placement and compaction that in-place density of compacted fill complies with requirements.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Construction Manager.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:
   1. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 50 feet or less of trench length but no fewer than two tests.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; re-compact and retest until specified compaction is obtained.

3.14 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

   1. Scarify or remove and replace soil material to depth as directed by Construction Manager; reshape and re-compact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Construction Manager.

   1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property in accordance with Construction Documents.

END OF SECTION 31 23 23

SECTION 330130.03 – SEWER FLOW CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing temporary sewer flow control to accommodate sanitary sewer rehabilitation work as required in the plans.

B. The Contractor is responsible to determine the method of sewer flow control for all pipe sizes and flow quantities. If the Contractor cannot adequately control the sanitary sewer flow as required to perform the work, then the Contractor will be required to perform Temporary Flow Diversion Pumping.

C. The Contractor shall provide all supervision, labor, materials, equipment, fuel, power, water, and incidentals required to install, maintain and remove temporary complete sewer flow control measures as required to perform work under this contract.

D. Section Includes:

1. Plugging or Blocking
2. Temporary Flow Diversion Pumping
3. Private Sanitary Service Line Shutdown

1.3 PRICE AND PAYMENT PROCEDURES

A. There is no direct measurement or payment for flow control. Contractor's cost to perform this work shall be included in the respective Contractor's unit bid item prices for sanitary sewer rehabilitation tasks.

1.4 DEFINITIONS

A. Surcharged: When the sanitary sewer collection system has a water level that is 12" or more above the top of the pipe inlet, the manhole shall be considered surcharged.

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Shop Drawings:

1. Sewer Flow Control Plan: The Contractor shall submit a Sewer Flow Control Plan to the Engineer prior to the start of sanitary sewer flow control or other sanitary sewer cleaning, inspection or other rehabilitation work. The plan shall include site layout, line size, design

flow, method, materials, pump information, piping plans, contingency methods, emergency response plans and emergency contact information.

C. Design Data:

1. The Contractor shall provide all the design data for the sewer flow design conditions include volumetric flow, total head, pump efficiency and required pump motor power.

1.6 REFERENCE STANDARDS

A. Sewerage and Water Board of New Orleans

1. General Specifications and Standard Drawings, current edition.
2. Sewer Overflow Abatement Plan, current edition.

1.7 PERFORMANCE REQUIREMENTS

A. Sewer flow control systems shall be of sufficient capacity to handle existing flows plus additional flow that may occur due to rain events and shall not adversely impact upstream or downstream flow conditions or levels.

B. Depth of Flow: For mainline sewer cleaning and CCTV, the sewer flow control systems shall maintain an approximate depth of flow in the mainline sewer as follows:

1. 6” to 10” Diameter Pipe: 10% of Pipe Diameter
2. 12” to 24” Diameter Pipe: 15% of Pipe Diameter
3. 24” Diameter Pipe or greater: 20% of Pipe Diameter

C. Flow Diversion Pumping Capacity Requirements: The Contractor is required to determine the required capacity for temporary flow diversion pumping setups. The Contractor shall also ensure the pump has sufficient head capacity to deliver the determined flow at the head conditions specific to the site setup. The Contractor will be required to fully restore sanitary sewer flow if the sewer flow control is found to be causing the sanitary sewer system to surcharge.

1.8 QUALITY ASSURANCE (NOT USED)

1.9 REGULATORY REQUIREMENTS

A. Diversion of wastewater to non-sanitary sewer facilities, e.g., storm drainage systems, on the ground or roadway surface, or natural waterways, is strictly prohibited.

1.10 FIELD CONDITIONS

A. Sewer Flow Control shall not be performed during periods where the sanitary sewer system is surcharged.

1.11 DELIVERY, STORAGE AND HANDLING (NOT USED)

1.12 COORDINATION

A. The Contractor shall not request or depend on the Sewerage & Water Board to change sanitary sewer pump station operations as a method of sewer flow control.

1.13 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sanitary sewer system is not surcharged prior to the start of work.

3.2 PREPARATION

A. Prepare site as required for installation of flow diversion pump and piping if required.

3.3 INSTALLATION

A. Line plugs, temporary pumps, piping and other sewer flow control appurtenances shall be installed as per the supplier's and/or manufacturer's instructions.

3.4 PLUGGING OR BLOCKING

A. Line plugs shall be permanently marked with a Contractor identification tag. Plugs shall be so designed that all or any portion of the flow can be released as required at any time.

B. Plugs shall be inflatable plugs constructed of specially treated industrial fabric and reinforced neoprene. Plugs shall be equipped with steel pull rings and aluminum end clamps. All plugs shall be firmly attached to a stationary object at ground level by a steel cable in order to prevent loss of plug in the pipeline.

3.5 TEMPORARY FLOW DIVERSION PUMPING

A. Flow diversion pumping is only authorized where plugging and blocking of sewer lines is insufficient to prevent surcharged lines. Written authorization from the Construction Manager or Engineer must obtained before flow diversion pumping is paid.

B. Diversion pumping shall provide continuous sanitary sewer service to the users of the sanitary sewer system while operations are in progress by diverting flow when necessary around the work location and pumping it to a downstream manhole or adjacent sanitary sewer system.

C. The Contractor shall supply the necessary pumps, conduits, and other equipment to divert the flow of wastewater around the pump station, restriction, blockage, or other structure where the work is to be performed.

D. The Contractor shall provide an experienced operator on site to monitor the operation, adjust pumping capacity, perform minor repairs, report problems and keep the equipment in proper operating condition at all times during diversion pumping operations.

E. If pumping is required on a 24-hour basis, all equipment shall be operated in a manner to keep the pump noise at a minimum.

F. Pumping shall be begin prior to the start of work each day and throughout the work day as necessary to provide a dry line to work in and a workable site. Pumping operations will be stopped at the end of each work day and sewer lines being worked on shall be returned to operational condition without bypass pumping.

3.6 PRIVATE SERVICE LINE SHUTDOWN

A. When it is necessary to shut down a private sewer service line while work is in progress and before the service lines are reconnected, the residents are to be notified by the Contractor not more than one week prior to and again not more than 24 hours immediately prior to the shutdown.

B. No sewer or water service is to remain out of service for more than a period of eight (8) hours, and not before 8:00 a.m., or after 6:00 p.m.

C. Sewage from the services or main line shall be discharged or diverted into an adjacent or downstream sewer only.

3.7 MAINTENANCE

A. The Contractor shall maintain sewage flow to prevent backup or overflow onto public and private property or into storm drainage systems.

3.8 FIELD QUALITY CONTROL (NOT USED)

3.9 PROTECTION

A. Whenever flows in a sewer line are blocked, plugged, or diverted, sufficient precautions shall be taken by the Contractor to protect the sewer lines from damage that might be inflicted by excessive surcharging. Further, precautions shall be taken by the Contractor to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sanitary sewers involved.

3.10 CLEAN UP AND REMOVAL

A. In the event of spillage or overflow, the Contractor shall take immediate action to arrest the spillage or overflow, clean up the area and disinfect the spillage in accordance with the Sewerage & Water Board's Overflow Abatement Plan. The Contractor shall immediately notify the Engineer and Owner of any sanitary sewer spills or overflows.

B. When flow diversion pumping operations are complete, all pumps, piping, etc. shall be drained into the sanitary sewer prior to disassembly. Sewage shall only be allowed to discharge into the sanitary sewer system.

C. In accordance with the submitted Sewer Flow Control Plan, the Contractor shall be solely responsible for executing sewer flow control operations and for damage to private and public property that may result from its operations.

D. Contractor shall remove the line plug upon completion of the sanitary sewer rehabilitation work and ensure that sanitary sewer flow has been fully restored.

E. Contractor shall fully restore any site modifications performed to accommodate the sewer flow control system.

END OF SECTION 330130.03

SECTION 33 01 30.13 – CLEANING OF SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing cleaning to sewer pipelines, sewer service laterals and manholes to remove all debris, solids, grit, sand, gravel, shells, grease, etc. as required in order for the Contractor to perform work scheduled in this contract.

B. The Contractor is responsible to determine the method of sewer cleaning for all pipe sizes and manhole diameters.

C. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to perform all cleaning of sewers.

D. Section Includes:

1. Cleaning Equipment
2. Sewer Cleaning
3. Manhole Cleaning

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020 – Measurement and Payment.

B. Measurement:

1. Length Measurement: Measurements will be made as the horizontal length dimension of sewer cleaned, and measured in linear feet. Irregular horizontal lengths will be measured as a summation of equivalent non-overlapping lines, arc lengths, or other applicable geometry.

2. Each Measurement: Measurements will be made per actual quantity of items fully installed, and measured per each. There will be no allowance for partial or fractional installations or quantities.

C. Payment:

1. Sewer Mainline Cleaning (8” – 14”): Payment for Sewer Mains Cleaning (8” – 14”) will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

2. Sewer Mainline Cleaning (15” – 21”): Payment for Sewer Mains Cleaning (15” – 21”) will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

3. Sewer Mainline Cleaning (24” – 27”): Payment for Sewer Mains Cleaning (24” – 27”) will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

4. Obstruction Removal: Payment for Obstruction Removal will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurement.

D. No Separate Measurement or Payment will be made for cleaning of sewers in the following circumstances.

1. CCTV Inspection: The cleaning of sewers where CCTV inspection is scheduled in the plans outside of the designation of “Find and Fix” will not be separately measured or paid. The costs of cleaning the sewer lines shall be included in the cost to perform the CCTV inspection.

2. Sewer Rehabilitation: The cleaning of sewers scheduled for sewer rehabilitation in the plans will not be separately measured or paid. The costs of cleaning the sewer lines shall be included in the cost to perform the associated sewer rehabilitation.

3. Cured In Place Pipe Lining: The cleaning of sewers scheduled for CIPP lining in the plans will not be separately measured or paid. The costs of cleaning the sewer lines shall be included in the cost to install the CIPP lining.

4. Sewer Service Laterals: The cleaning of sewer service laterals will not be separately measured or paid. The costs of cleaning the sewer service laterals shall be included in with the CCTV inspection of the sewer service laterals.

5. Sewer Manholes: There will be no separate measurement taken for the cleaning of sewer manholes. The cost of cleaning sewer manholes shall be included with the applicable rehabilitation of the sewer manholes.

1.4 DEFINITIONS

A. Cleaning: Cleaning shall be defined as the use of high velocity jet nozzle cleaning equipment, bucket machines, scrapers or augers necessary to clean the line to the satisfaction of the Engineer.

B. Obstruction Removal: Obstruction Removal is defined as removal of obstructions such as roots and intruding connections. Obstruction removals may require the use of special equipment such as rodding or bucket machines, and/or expanding cutters. The Contractor will obtain authorization from the Engineer prior to conducting any obstruction removal. Authorization shall be required for each individual sewer reach. No payment shall be made for Obstruction Removal without written approval by the Engineer.

C. Find and Fix: Sewer lines designated as “Find and Fix” in the plans were not accessible to the Designer during the study and/or design phase of the sewer system evaluation. The Contractor shall locate and reveal both upstream and downstream manholes for these lines, and then perform cleaning of the sewer line in order to accommodate CCTV inspection.

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Field Inspection Records:

1. Cleaning of Sewers Logs: Contractor shall submit a proposed form, log and reports prior to the start of work for the Engineer’s review. The log, form and/or report shall be submitted on a weekly basis to document the progress of Cleaning of Sewers, inclusive of all information requested within these specifications.

1.6 REFERENCE STANDARDS

A. Sewerage and Water Board of New Orleans

1. General Specifications and Standard Drawings, current edition.

1.7 PERFORMANCE REQUIREMENTS

A. Selection of cleaning equipment shall be based on the conditions of the sewer lines at the time the work commences.

1. The Contractor will determine the most effective method to clean sewer lines.
2. Equipment and methods selected shall be satisfactory to the Engineer.

B. When requested by the Engineer, the Contractor shall demonstrate the performance capabilities of the cleaning equipment and method proposed for use on the project. If results obtained from the demonstration are not satisfactory to the Engineer, the Contractor shall provide other equipment or devices that will clean the sewer line to the satisfaction of the Engineer.

C. For hydraulically propelled or high velocity sewer cleaning equipment, the Contractor shall install a gauge to indicate working pressure on the discharge of high-pressure water pumps.

D. The Contractor shall use a nozzle that directs the cleaning force to the full circumference of the pipe.

1.8 QUALITY ASSURANCE (NOT USED)

1.9 REGULATORY REQUIREMENTS

A. The Contractor shall dispose of any grit, debris or other material removed from the sanitary sewer system as part of this work into a permitted facility in accordance with Contract Documents.

B. Disposal to non-sanitary sewer facilities, e.g., storm drainage systems, on the ground or roadway surface, natural waterways, or other unpermitted sites is strictly prohibited.

1.10 FIELD CONDITIONS

A. Cleaning of sewer lines shall not be performed if the Contractor does not have sufficient Sewer Flow Control to the depths specified in Section 330130.03.

1.11 DELIVERY, STORAGE AND HANDLING (NOT USED)

1.12 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sewer system is not surcharged prior to the start of work.

3.2 PREPARATION

A. Contractor shall provide Sewer Flow Control, as specified in Section 330130.03 prior to the start of Cleaning of Sewers.

B. The Contractor shall obtain a suitable water supply to operate his cleaning equipment at the flow rates and pressures required by the equipment manufacturer.

C. The Contractor shall install a suitable sand trap, weir, dam, or suction pipe in the downstream manhole so that solids and debris are trapped for removal prior to the performance of Cleaning of Sewers.

D. The Contractor shall position his equipment and layout the site so as to not obstruct any fire hydrants or otherwise prevent its use in case of a fire in the area served by the hydrant.

3.3 CLEANING EQUIPMENT

A. All cleaning equipment must be equipped with a backflow preventer to prevent any contamination to the public water supply

1. When utilizing water from the public water supply, the Contractor shall remove water meters, fitting and piping from fire hydrants at the end of each working day.

B. HYDRAULIC SEWER CLEANING EQUIPMENT

1. The equipment used shall be of a movable dam type and be constructed so that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer.

2. The movable dam shall be of the same diameter as the sewer line being cleaned and shall provide a flexible scraper around the outer periphery to ensure total removal of grease.

3. If sewer cleaning balls or other such equipment which cannot be collapsed are used, special precautions against flooding of the sewers and public or private property shall be taken.

C. HIGH VELOCITY WATER JET CLEANING EQUIPMENT

1. All high velocity sewer cleaning equipment shall be constructed for ease and safety of operation.
2. The equipment shall have a variety of high velocity nozzles.
3. The nozzles shall be capable of producing a scouring action from 15 degrees to 45 degrees in all size lines to be cleaned.
4. In addition to conventional nozzles, use a nozzle or series of nozzles which direct the cleaning force to the bottom of the pipe for sewers 18 inches and larger.
5. The equipment shall include a water tank, auxiliary engines, pumps and hydraulically driven hose reel all contained within one single unit.
6. All controls shall be located so the equipment can be operated above ground. A gauge shall be installed to indicate working pressure on the discharge of high-pressure water pumps.

D. MECHANICAL CLEANING EQUIPMENT

1. Bucket machines shall be used in pairs with sufficient power to perform the work in an efficient manner.
2. Machines shall be belt operated or have an overload device.
3. Machines with direct drive which could cause damage to the pipe shall not be used.
4. Power rodding machines shall be either sectional or continuous type capable of holding a minimum of 750 feet of rod.
5. The rod shall be heat treated steel.
6. To ensure safe operation, the machine shall have a fully enclosed body and an automatic safety release clutch or relief valve.

E. PRESSURE WASHING EQUIPMENT

1. Operating Pressure – 3,000 psi with the capability to produce a continuous flow of water at a minimum temperature of 210-degree Fahrenheit at a minimum force of 3,000 psi.

F. When requested by the Engineer, the Contractor shall demonstrate the performance capabilities of the cleaning equipment and method proposed for use on the project. If results obtained from the demonstration are not satisfactory to the Engineer, the Contractor shall provide other equipment or devices that will clean the sewer line to the satisfaction of the Engineer.

3.4 SEWER CLEANING

A. Cleaning shall be performed prior to internal inspection to preclude the buildup of debris from infiltration and inflow sources and discharges from upstream sewer line segments sections.

B. All interior surfaces of sewer lines shall be cleaned adequately to provide for a camera used in internal inspection to discern structural defects, misalignment, and infiltration and inflow sources.

C. Selection of cleaning equipment shall be based on the conditions of the sewer lines at the time the work commences. The Contractor will determine the most effective method to clean sanitary sewer lines. Equipment and methods selected shall be satisfactory to the Engineer.

D. A daily log shall be maintained to record the location of all sewer lines cleaned, lengths of lines cleaned, method of cleaning, line sizes, and number of passes.

E. If cleaning of an entire line segment cannot be successfully performed from one manhole, the equipment shall be re-setup at the manhole on the opposite end of the pipe segment being cleaned and cleaning shall be re-attempted.

3.5 MANHOLE CLEANING

A. Contractor shall clean manhole walls, trough, bench and all other interior manhole components using a pressure washer at a minimum pressure of 3,000 psi and at 210 degrees Fahrenheit.

B. Contractor shall use detergents or muriatic acid capable of removing dirt, grease, oil, and other matter which would prevent bonding of a sealing material to the manhole wall. The Contractor shall refer to the lining material specifications required by the lining manufacturer.

3.6 OBSTRUCTION REMOVAL

A. Approved Obstruction Removal shall be done by robotic equipment prior to CIPP Lining, for protruding taps, roots, or obstructions up to twelve feet in length.

B. Only partial payment will be made until pre and post lining CCTV data is submitted.

3.7 MAINTENANCE (NOT USED)

3.8 FIELD QUALITY CONTROL

A. Acceptance of sewer cleaning work is contingent upon the successful completion of the television inspection.

1. If television inspection shows debris, solids, sand, grease or grit remaining in the line, the cleaning is considered unsatisfactory.

2. The Contractor, at no additional cost to the Owner, shall repeat the cleaning, inspection, and televising of the sewer line until cleaning is acceptable by the Construction Manager.

3.9 PROTECTION

A. The Contractor shall take necessary precautions to protect sewer line segments and manholes from damage that may be imposed by the improper selection of the cleaning or improper use of the equipment.

B. When using hydraulically propelled devices, the Contractor shall take necessary precautions to ensure that the water pressure created does not cause damage or flooding to public or private property.

3.10 CLEAN UP AND REMOVAL

A. The Contractor is responsible for the disposal of waste from cleaning operations at a permitted disposal site.

   1. The Sewerage and Water Board's East Bank Sewage Treatment Plant is available for disposal of waste from cleaning operation under this Contract.

   2. The Contractor shall abide by the operational policies and normal administrative working hours for the East Bank Sewage Treatment Plant when used for disposal.

   3. The Contractor shall notify the Construction Manager in writing if other permitted sites are utilized for disposal.

   4. The Owner will maintain ownership responsibilities of the waste from cleaning operations disposed properly in permitted, regulated facilities.

B. The Contractor shall remove sludge, dirt, sand, rocks, grease, roots, and other solid or semi-solid material resulting from the cleaning operation at the downstream manhole of the section being cleaned.

   1. Passing debris from one sewer main to another sewer main is not allowed.

   2. The Contractor shall load debris from the manholes into an enclosed container that is permitted for liquid waste hauling.

   3. The Contractor shall not accumulate debris, liquid waste, or sludge on the site except in totally enclosed containers approved by the Construction Manager and in accordance with local zoning ordinances.

   4. The Contractor shall remove solids or semi-solids resulting from cleaning operation from the site and dispose of it at the end of each workday or otherwise store it in an approved liquid tight storage container.

C. Sewer Flow Control shall be removed and sewer flow shall be normalized in accordance with Section 330130.03.

END OF SECTION 33 01 30.13

SECTION 330130.16 – CCTV INSPECTION OF SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing CCTV inspection sanitary sewer pipelines and sanitary sewer service laterals.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to perform all CCTV inspection activities.

C. Section Includes:

1. CCTV Inspection Equipment
2. Pipe Inspection Camera Equipment
3. Lateral Inspection Camera
4. Camera Operation
5. CCTV Inspection Schedule

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020 – Measurement and Payment.

B. Measurement:

1. Length Measurement: Measurements will be made as the horizontal length dimension of sewer CCTV inspected, and measured in linear feet. Irregular horizontal lengths will be measured as a summation of equivalent non-overlapping lines, arc lengths, or other applicable geometry.

C. Payment:

1. Sanitary Sewer Main Line CCTV Inspection: Payment for Sanitary Sewer Main Line CCTV Inspection will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

2. Sanitary Sewer Service Lateral CCTV Inspection: Payment for Sanitary Sewer Service Lateral CCTV Inspection will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and C.

D. No Separate Measurement or Payment will be made for CCTV Inspection of Sewers where rehabilitation work is scheduled in the plans for the sanitary sewer line or sanitary sewer service lateral. The Contractor shall include the cost of CCTV Inspection of Sewer Pipelines in the

associated scheduled rehabilitation method for the sanitary sewer line and sanitary sewer service laterals.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Field Inspection Reports:

1. The Contractor shall maintain a master copy of all DVD's and CCTV Inspection Reports until the Final Acceptance of the Contract.

2. All submitted DVD's and CCTV Inspection Reports are property of the Owner and will not be returned to the Contractor.

3. Where defect coding is required, the Contractor shall also submit the Microsoft Access Database including the defect coding for all lines inspected to date.

4. The Contractor shall provide video recordings with audio comments in the DVD format, recorded at Standard Play (SP).

5. Complete sewer line segments shall be included on the same video recordings (i.e., CCTV inspections for sewer line segments shall not be divided among DVD's).

6. The video format shall be an MPEG-1 compressed video, and resolution video format shall be QSIF (Quarter-size Standard Image Format) of 176 x 112 pixels for NTSC video format.

7. The Contractor shall submit documentation that the CCTV inspection equipment to be utilized meets the requirements in these specifications.

8. The Contractor shall complete a Television Inspection Report covering the television inspection work and the information acquired, as described in the Sewerage and Water Board of New Orleans' Sewer Condition Classification Manual, latest edition.

9. The same television inspection code sheet shall be used throughout the Contract. The code sheet shall include abbreviations for specific defects as detailed in the Sewer Condition Classification Manual. Submit all electronic data files for the previous week's work to the Engineer weekly CD-ROM. Include hard copy printouts of the correlating inspection reports with each submittal. Submit electronic files on CD-ROM and DVD's for corresponding lines concurrently. Submit all electronic data files in a Microsoft Access database format provided by the Owner. The manual and data entry database are available for review at the office of the Construction Manager.

10. At the start of each line segment video recording, record and report the measured length of the sewer line being inspected. Begin with zero at the inside face of the start manhole, and end at the inside face of the end manhole.

11. At the start of each line segment video recording, electronically generate and clearly display, on the viewing monitor and video recording, a record of data in alphanumeric form containing the following information:

    a. Size and Length of Line;
    b. Automatic update of the camera's position, in feet and tenths, in the sewer line from adjusted zero;
    c. Type of pipe material;
    d. Upstream manhole name and downstream manhole name;
    e. Date of inspection;
    f. Road name or line segment location description;
    g. Direction of inspection (upstream or downstream);
    h. Starting time of the inspection.

12. Once the survey of the sewer line is under way, continuously display specific data on the viewing monitor and video recording. The size and position of the data display shall not interfere with the main subject of the picture yet shall be easily readable when the recording is replayed. At a minimum, the following data should be displayed:

    a. Automatic update of the camera's position, in feet and tenths, in the sewer line from adjusted zero.
    b. Upstream manhole name and downstream manhole name.

13. Each sewer length, i.e. the length of sewer between two consecutive manholes, shall be entered on a separate coding sheet. Thus, where a Contractor elects to "pull through" a manhole during a CCTV Survey, the Contractor shall start a new coding sheet at the manhole "pulled through" and shall re-set the distance to zero on the coding sheet.

14. All CCTV Inspection Records shall be submitted in batch on a weekly basis.

15. The Contractor shall provide the Board with monthly readings of water consumption for billing purposes.

1.6 REFERENCE STANDARDS

A. Sewerage and Water Board of New Orleans
    1. General Specifications and Standard Drawings, current edition.
    2. Sewer Condition Classification Manual, current edition.
    3. Sewer Overflow Abatement Plan, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE

A. Contractor is responsible to ensure the camera and lighting system is operable without recording lens distortions, inadequate lighting, dirty lens, blurred or hazy recordings or unsteady camera.

1.9 REGULATORY REQUIREMENTS (NOT USED)

1.10 FIELD CONDITIONS

A. CCTV Inspection of sewer lines shall not be performed in the Contractor does not have sufficient Sewer Flow Control to the depths specified in Section 330130.03 of the sewer pipelines have not been sufficiently cleaned as per Section 330130.13.

1.11 DELIVERY, STORAGE AND HANDLING (NOT USED)

1.12 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sanitary sewer system is not surcharged prior to the start of work.

3.2 PREPARATION

A. Contractor shall provide Sewer Flow Control, as specified in Section 330130.03 Sewer Flow Control prior to the start of CCTV Inspection of Sewers.

B. Contractor shall submit a Traffic Control Plan to the approving authority (DPW, DOTD, etc) for review and approval prior to the closing of any streets. The approved traffic control plan shall be fully executed prior to the performance of CCTV Inspection of Sewers.

C. The Contractor shall provide adequate sewer line cleaning as specified in Section 330130.13 Cleaning of Sewers prior to the start of CCTV Inspection of Sewers.

D. The Contractor shall position his equipment and layout the site so as to not obstruct any fire hydrants or otherwise prevent its use in case of a fire in the area served by the hydrant.

3.3 CCTV INSPECTION EQUIPMENT

A. The Contractor shall select and use closed-circuit television equipment that will produce color video recordings.

B. The Contractor shall supply camera skids and floating skids or rafts as required to complete pre- and post- rehabilitation CCTV inspection as required in the Contract.

1. The Contractor shall inspect sewer lines with pan and tilt conventional television equipment.

2. The operation of the television equipment shall be controlled by a skilled technician or supervisor who shall be located at the control panel in the mobile television studio.

3. The CCTV equipment including reels and the television studio are to be contained within a single vehicle.

4. The camera system shall be able to navigate around minor objects, roots and debris.

5. The camera cable shall be retracted to remove slack and to ensure an accurate footage reading.

3.4 PIPE INSPECTION CAMERA EQUIPMENT

A. The television camera used for the sewer line inspection shall be one specifically designed and constructed for sewer pipeline inspection. The camera shall be waterproof and shall be operative in any conditions that may be encountered in the inspection environment. The camera shall be operative in 100% humidity conditions. The Contractor shall produce video recordings using a pan-and-tilt, radial viewing pipe inspection camera that pans ±275 degrees and rotates 360 degrees.

B. If television inspection of an entire line segment cannot be successfully completed from one manhole; a reverse set-up must be performed to obtain a complete television inspection. If successful televising of the entire line segment cannot then be accomplished, the inspection effort shall be abandoned. The Contractor will be paid for the inspection of the actual length of line segment televised. There will be no additional payment for reverse set-ups.

C. The camera shall be moved through the line segment in either direction at a rate not to exceed 30 feet per minute. Any means of propelling the camera through the sewer line which would produce non-uniform or jerky movement of the camera, will not be acceptable. Stop the camera at all defects so that a clear picture of the defect remains on the video screen for the operator to verbally describe the defect on the tape. Record a full 360 degree pan view at all service lateral lines.

D. When manually operated winches are used to pull the television camera through the line segment, radios or other suitable means of communication shall be set up between the two manholes of the line segment being inspected to ensure good communications between members of the crew.

E. Wherever prevailing conditions allow, the CCTV camera head shall be positioned to reduce the risk of picture distortion. In circular sewers, position the television camera lens centrally (in prime position) within the sewer. In non-circular sewers, camera location shall be at mid-height of the sewer, unless otherwise agreed, and centered horizontally. In all instances, orient the camera along the longitudinal axis of the sewer when in prime position. A positioning tolerance of plus or minus 10% of the vertical sewer dimension shall be allowed when the camera is in prime position.

F. The adjustment of focus and iris shall provide a minimum focal range from 2 inches in front of the camera's lens to infinity. The distance along the sewer in focus from the initial point of observation shall be a minimum of twice the vertical height of the sewer. The illumination must be such as to allow an even distribution of the light around the sewer perimeter without the loss of contrast, flare out of picture, or shadowing.

G. The Contractor shall use a camera with camera height adjustment so that the camera lens is always centered at one-half the inside diameter or higher in the pipe being televised. The Contractor shall provide remote and/or automatic focus and aperture control.

H. The television inspection equipment shall be of such high quality as to enable the following to be achieved:

1. Color: With the monitor adjusted for correct saturation, the six colors plus black and white shall be clearly resolved with the primary and complementary colors in order of decreasing luminance.

2. Resolution: The live picture must be displayed on a monitor capable of providing a clear, stable image free of electrical interference with a minimum horizontal resolution not less than 450 lines.

I. The Closed Circuit Television monitor display shall incorporate an automatically updated record in feet and tenths of a foot of the distance along the line from the cable calibration point to the center point of the camera. The Contractor shall use a suitable metering device that enables the cable length to be accurately measured; this shall be accurate to ±2%. The Contractor shall demonstrate that the tolerance is being complied with, by tape measurement between manholes on the surface. This taped measurement must be included on each television inspection log both written and electronic. If the Contractor fails to meet the required standard of accuracy, the Engineer shall instruct the Contractor to re-survey those lengths of sewer at no additional cost to the Owner.

J. Video recording shall be in DVD format at standard play speed. Video recordings shall be high quality. The video recording shall reproduce clearly discernable sound and video information on the television monitor. The recording shall be free of interference and shall produce a clear, stable image.

K. The audio portion of the recording shall be clear and complete, and easily discernible. The audio portion shall record the location or identification of the line segment, the manhole-to-manhole direction of travel, and the distance traveled on the specific inspection. The audio portion shall record and identify all visible defects and include the information required by the Sewerage and Water Board of New Orleans' Sewer Condition Classification Manual, latest edition.

L. The video recording equipment shall be continuously connected to the television inspection and monitoring equipment. The video recording and monitoring equipment shall have the built-in capability to allow the Engineer and the Contractor to instantly evaluate both the audio and video quality of the video recording at all times during the television survey. Playback speed shall be continuously adjustable from one-third normal speed for slow-motion viewing to normal playback speed. Video recordings shall be enclosed in plastic containers which shall clearly indicate the date the tape was recorded, the designated section(s) of sewer lines contained on the tape, and the referenced sewer inspection report covering the sections of the sewer lines so included.

3.5 LATERAL INSPECTION CAMERA EQUIPMENT

A. The television camera used for the lateral inspection shall be one specifically designed and constructed for lateral survey inspection. The Contractor shall provide a portable "mini-cam"

CCTV inspection system. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera, television monitor, and other components of the video system shall provide a minimum of 700 line resolution color video satisfactory to the Engineer and contain footage readings displayed on the monitor and videotape at all times.

B. The camera system shall be able to inspect 3-, 4-, and 6-inch lateral connections up to 100 feet from the sewer mainline (continuous inspection). The launcher shall be mounted on a tread tractor that moves through main sewers and positions the inspection camera launcher opposite the lateral line connection.

C. The camera system shall have a mini black and white or color, fixed position, "positioning" camera to observe and place the mini color, push, "inspection" camera at the lateral. The inspection camera shall be attached to an 100-foot long push cable with a fiberglass rod core for cable rigidity. The camera head shall point forward while traveling through the sewer mainline.

3.6 CAMERA OPERATION

A. Throughout all CCTV inspections, the camera equipment shall be positioned with the camera directed along the longitudinal axis of the sewer. All efforts should be made to prevent damage to the sewer conduit during the television inspection. In the case where damage is caused by the Contractor, for any reason, such as would be caused by incorrect deployment of camera system or retrieval of lodged equipment, the cost of repair or remedy shall be absorbed by the Contractor and shall be considered an incidental part of the Work. No separate measurement or payment will be made.

B. The CCTV operator shall accomplish simultaneous video and audio recording of defects, services, on site.

C. The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to ensure proper documentation of the sewer's condition. Manual winches, power winches, TV cable, powered rewinds, and crawler devices or other devices that do not obstruct the camera view and do not interfere with proper documentation of the sewer conditions shall be used to move the camera through the entire sewer line section. The Contractor shall reposition his equipment as necessary so that the inspection can be performed from manhole on the opposite end of the pipe segment being viewed.

D. Whenever non-remote powered and controlled or manually operated winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be employed by the Contractor to ensure good communications between members of the crew.

E. The lateral inspection camera video shall contain the forward and backward movement of the camera up to the mainline and back to the cleanout. If an attempt to video the service lateral line cannot be completed to the sewer main line, the blockage will be reported to the Engineer in writing and the service lateral line CCTV inspection will be abandoned.

F. When utilizing a lateral camera launcher system from the mainline, a maximum of 100 linear feet of the lateral or to the property cleanout, whichever is closer to the sewer main line, shall

be inspected. Actual footage inspected may vary depending on lateral condition, bends, roots, launcher limitations, etc.

3.7 PRE-REHABILITATION CCTV INSPECTION

A. The Contractor shall perform Pre-Rehabilitation CCTV Inspection as per the schedule in section 3.13 below.

B. The Contractor shall provide defect coding as part of Pre-Rehabilitation CCTV Inspection.

1. Where the CCTV Inspection requires defect coding, the defect coding shall be performed in accordance with the Sewerage & Water Board of New Orleans Sewer Condition Classification Manual.

C. The Contractor shall note and record the locations of all sanitary sewer lateral services, by line station numbering, orientation, service line diameter, material and condition.

D. The Engineer will make the final determination of rehabilitation for line segments identified as find and fix line segments.

E. The Contractor shall determine if a change or addition in the rehabilitation method(s) is necessary for line segments identified to receive a full length CIPP liner. If the Contractor determines that a change or addition in the rehabilitation method(s) is necessary, the Contractor shall provide the pre-rehabilitation CCTV inspection, DVD and inspection report to the Engineer for review and approval.

3.8 POST REHABILITATION CCTV INSPECTION

A. The Contractor shall perform Post-Rehabilitation CCTV Inspection as per the schedule in section 3.13 below.

B. The Contractor is not required to provide defect coding as part of Post-Rehabilitation CCTV Inspection.

C. The Contractor shall note and record the locations of all sanitary sewer rehabilitation, by line station numbering and condition.

3.9 MAINTENANCE (NOT USED)

3.10 FIELD QUALITY CONTROL

A. Acceptance of CCTV Inspection of Sewers is contingent upon the successful submittal of a complete television inspection of a clean sanitary sewer line and an inspection free of camera distortions, inadequate lighting, dirty lens, blurred or hazy images or an unsteady video.

1. If the television inspection shows debris, solids, sand, grease or grit remaining in the line, the cleaning and CCTV inspection is considered unsatisfactory.
2. If the television inspection produces camera distortions, inadequate lighting, dirty lens, blurred or hazy images or an unsteady video, the CCTV inspection is considered unsatisfactory.

3. The Contractor, at no additional cost to the Owner, shall repeat the cleaning, inspection, and televising of the sewer line until cleaning and CCTV inspection is acceptable by the Engineer.

B. The distance between manholes shall be verified by measuring tape as per the applicable paragraph on 'Measurement' in section 1.4 above.

1. If the counter distance and the taping distance differ by more than 2 feet per 100 feet, the Contractor shall be re-televised by CCTV Inspection.

3.11 PROTECTION

A. The Contractor shall take necessary precautions to protect sewer line segments and manholes from damage that may be imposed by the improper use of the CCTV inspection equipment.

3.12 CLEAN UP AND REMOVAL

A. Upon completion of the CCTV Inspection, the Contractor shall fully clean and restore the site.

B. Sanitary Sewer Flow Control shall be removed and sanitary sewer flow shall be normalized in accordance with Section 330130.03.

3.13 CCTV INSPECTION SCHEDULE

A. Pre-rehabilitation CCTV

1. Sewer line segments identified as find and fix line segments, at direct measurement and pay.
2. Sewer line segments to be rehabilitated by point repair, at no direct measurement and pay.
3. Sewer line segments to be rehabilitated by full-length lining, at no direct measurement and pay.
4. Service laterals to be rehabilitated by CIPP lining, at no direct measurement and pay.
5. Service laterals where CCTV was requested and performed but not found to not be eligible for rehabilitation by CIPP lining, at direct measurement and pay.

B. Post-rehabilitation CCTV

1. Sewer line segments repaired by full-length replacement, at no direct measurement and pay.
2. Sewer line segments rehabilitated by full-length CIPP lining, at no direct measurement and pay.
3. Sewer line segments rehabilitated by excavated point repair, at no direct measurement and pay.
4. Service laterals rehabilitated by CIPP lining, at no direct measurement and pay.

C. The Contractor, upon written request of the Engineer, shall perform CCTV inspections for line segments and/or service laterals in addition to this schedule, at direct measurement and pay.

END OF SECTION 330130.16

SECTION 330130.73 – EXCAVATED REHABILITATION OF SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of the rehabilitation of sewer pipelines and sewer service laterals by means of excavation, including full line replacement, partial line replacement (point repair) and line relocations.

B. Sewer pipeline rehabilitation may include replacement or repair of, but shall not be limited to, cracked pipe, broken pipe, faulty tap, protruding tap, sheared joint, dropped joint, faulty manhole connection, or other similar conditions. All necessary material will be furnished and installed by the Contractor to ensure proper sewer services after work is completed.

C. All materials and workmanship required by this section shall be performed in accordance with the applicable specification sections below.

D. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required for rehabilitation of all sewers utilities.

E. Section Includes:

1. Utility Location, Protection And Relocation
2. Sequencing of Work
3. Sewer Pipe Removal
4. Sewer Pipe Installation
5. Sewer Line Replacement
6. Sewer Line Relocation
7. Sewer Line Point Repair
8. Sewer Service Lateral Replacement
9. Sewer Manhole Connections

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020, Measurement and Payment.

B. Measurement:

1. Length Measurement: Measurements will be made as the horizontal length dimension of material installed, excluding overlap, and measured in linear feet. Irregular horizontal lengths will be measured as a summation of equivalent non-overlapping lines, arc lengths, or other applicable geometry.

2. Each Measurement: Measurements will be made per actual quantity of items fully installed, and measured per each. There will be no allowance for partial or fractional installations or quantities.

C. Payment:

1. Install New Sewer Mains: Payment for Install New Sewer Mains will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.
   a. Install New Sewer Mains is broken down into specific pay-items based on nominal pipe diameter and average depth of sewer pipe invert as per the unit price schedule.

2. Sewer Point Repair: Payment for Sewer Point Repair will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.
   a. Sewer Point Repair is broken down into specific pay-items based on nominal pipe diameter and average depth of sewer pipe invert as per the unit price schedule.

3. Sewer Point Repair, Beyond: Payment for Sewer Point Repair, Beyond will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.
   a. Sewer Point Repair, Beyond is broken down into specific pay-items based on nominal pipe diameter and average depth of sewer pipe invert as per the unit price.

4. Replace Existing Sewer House Connection from New Main to Back of Curb: Payment for Replace Existing Sewer House Connection from New Main to Back of Curb will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

5. Replace Existing Sewer House Connection Beyond Back of Curb: Payment for Replace Existing Sewer House Connection Beyond Back of Curb will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

D. There is no direct measurement or payment for removal of existing sewers (including excavation and disposal of all subsurface organic and inorganic materials, obstructions, existing sewer service laterals, fittings and appurtenances), or for the installation of sewers repair couplings, service connection fittings (wyes or tees), saddle fittings (wyes or tees) or manhole connections. This work is considered incidental to the rehabilitation of sewers and the cost of this work shall be included in the unit item bid price for the associated work included within this section.

E. Sewer Point Repairs shall include all excavation, trenching, sheeting, shoring, pipework bedding, backfill and compaction, and traffic maintenance aggregate. Pavement sawcutting and removal, base course, pavement and sod restoration are not included in this work.

1.4 DEFINITIONS

A. House Connection: House Connections shall refer the sewer service laterals and fittings necessary to connect from the sewer main line to a building (house or other) sewer cleanout.

B. Lateral Replacement: The replacement of a sewer service lateral and connections from the sewer main line to the public property side of a building cleanout (including all fittings).

C. Point Repair: The repair of a defective length of an existing sewers line with defined limits as per the plans or adjustments in the field, inclusive of tie-ins to the upstream and downstream sewer line and/or manholes and includes the replacement of any existing sewers service lateral tie-ins with the use of wyes and/or tees.

D. Replacement: The replacement of an existing sewer line from the upstream manhole to the downstream manhole complete with new manhole tie-ins and new sewer service laterals, fittings and connectors.

E. Wye Cards: Wye Cards are the official Owner record of house connections for all water and sewer utilities, on file by the Owner's Department of House Connections, and filed by address block. The cards provide sewer house connection location information and shall be used to field locate sewer service laterals prior to saw cutting, pavement removal and/or excavation.

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Product Data:

1. The Contractor shall submit the product data for the piping, joints, fittings and appurtenances documenting the manufacturer's name, pipe dimensional sizing and minimum pipe stiffness.

C. Certifications:

1. The Contractor shall submit pipe manufacturer's certification of compliance with these Specifications.

2. The Contractor shall submit documentation that the pipe manufacturer has certified the workmen who will be jointing pipe.

D. Manufacturer's Instructions:

1. The Contractor shall submit the pipe manufacturer's printed recommendations for handling, storing, and installing pipe.

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM A 240: Standard Specifications for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.

2. ASTM C 425: Standard Specification for Compression Joints Vitrified Clay Pipe Fittings.
3. ASTM C 1173: Standard Specification for Flexible Transition Couplings for Underground Piping Systems.
4. ASTM D 1784: Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
5. ASTM D 3212: Standard Specifications for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
6. ASTM D 5926: Standard Specification for Poly (Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems
7. ASTM F 477: Standard Specifications for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
8. ASTM F 679: Standard Specification for Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.

B. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition.
2. Sewer Overflow Abatement Plan, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE

A. Testing: Materials testing shall be based upon applicable ASTM Test Methods and AWWA Standards referenced herein. Costs of such inspection and tests shall be borne by the Contractor.

1.9 REGULATORY REQUIREMENTS

A. Occupational and Safety Health Administration (OSHA)

1. CFR 29, Part 1910.146: Permit Required Confined Spaces
2. CFR 29, part 1926, Subpart P: Excavations

1.10 FIELD CONDITIONS

A. Sewers Rehabilitation shall not be performed if the Contractor does not have sufficient Sewer Flow Control to completely perform the work without spill as per Section 330130.13 Sewer Flow Control.

1.11 DELIVERY, STORAGE AND HANDLING, AND INSPECTION

A. Refer to Sections 333111 Public Sewerage Gravity Piping and 330509 Piping Specialties for Sewer Utilities for Delivery, Storage and Handling, and Inspection requirements for all PVC pipe, accessories, and related materials for this Contract.

1.12 WARRANTY

A. The Contractor shall furnish an extended warranty for Sewers line repairs for a period of one (1) year from the date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS (NOT USED)

2.2 DESIGN CRITERIA (NOT USED)

2.3 ASSEMBLIES (NOT USED)

2.4 MATERIALS

A. PVC Pipe and Fittings

1. All Pipe and Fittings used for the Rehabilitation of Sewers Pipelines shall be in accordance with Sections 333111 Public Sewerage Gravity Piping and 330509 Piping Specialties for Sewer Utilities.

B. Bedding Material:

1. All bedding material shall conform to the S&WB General Specifications and Standard Drawings, current edition and Section 312323 Fill, Backfill and Compaction: Bedding Course (Paragraph 2.2.G) and Bedding (Paragraph 3.5).

2.5 ACCESSORIES

A. All Accessories used for the Rehabilitation of Sewers Pipelines shall be in accordance with Sections 333111 Public Sewerage Gravity Piping and 330509 Piping Specialties for Sewer Utilities

2.6 SOURCE QUALITY CONTROL

A. Complete records of inspections, examinations and tests shall be kept and submitted to the Engineer.

B. The Engineer reserves the right to perform any of the inspections set forth herein where deemed necessary to assure that material and services conform to the prescribed requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. All necessary Examination prior to the Rehabilitation of Sewers Pipelines shall be conducted in accordance with Section 333111 Public Sewerage Gravity Piping.

3.2 PREPARATION

A. All necessary Preparation prior to the Rehabilitation of Sewers Pipelines shall be conducted in accordance with Section 333111 Public Sewerage Gravity Piping.

B. Dewatering operations shall comply with Section 312319.

3.3 UTILITY LOCATION, PROTECTION AND RELOCATION

A. Where it is necessary for the proper accomplishment of the work to repair, move, and/or replace any such utility or structure, do so in accordance with the provisions set forth herein.

B. The Contractor shall locate any and all utilities on site that may require protection and/or relocation. The contractor is solely responsible for verifying the location of and scheduling any relocation of all conflicting utilities.

   1. Where service connections or lines from water or gas mains or sewers to the user's premises are disconnected, broken, damaged, or otherwise rendered inoperative by the Contractor for any reason, the Contractor shall, at Contractor's own expense, arrange with the respective utility company for any repairs or relocation of lines under their jurisdiction, or for any lines not within their jurisdiction; the Contractor shall repair or replace same and restore service to the premises.

C. The Contractor shall obtain the S&WB "Wye Cards" and shall field mark the locations of all service laterals that are located within or adjacent to the limits of rehabilitation.

3.4 SEQUENCING OF WORK

A. The Contractor's crew shall complete all rehabilitation required on a single sewer line segment, defined by the limits of the upstream manhole and downstream manhole, before the crew can move to another location.

B. The laying of new pipe in finished trenches shall begin at the lowest point, with the spigot ends pointing in the direction of flow.

C. Extreme care shall be exercised to keep pipe in exact alignment and elevation.

   1. New/replacement sewer lines and/or service laterals shall be installed at the same existing elevations and grades unless otherwise directed by the Engineer.

   2. At any time during a repair, the Engineer may make field judgments that shall govern over the repair.

D. Pipe laying shall not precede backfilling by more than 100 feet without approval by the Engineer.

E. The Contractor shall not leave any excavation/trenches open overnight.

F. No sewer service laterals or main lines shall be left open overnight; all uncompleted work shall be furnished with temporary closed tie-ins and manhole plugs shall be removed.

3.5 SEWER PIPE REMOVAL

A. After defective pipe has been exposed, uncover only as much additional pipe as is necessary to allow space for workmen and the installation of the new pipe.

B. Cut out the defective pipe in such a way that the ends are straight and smooth and free of chips or cracks.

C. Remove and dispose of the defective pipe from the trench, and excavate the former bedding material of any nature to 12-inches below the pipe grade.

D. There is no direct measurement or payment for the removal of Sewers piping, service laterals or bedding.

3.6 INSTALLATION

A. Sewer pipe installation shall be performed in accordance with the manufacturer's instructions and in accordance with the applicable specification section for the sewer pipeline material specification.

B. Installation of PVC sewer pipelines for rehabilitation include pipe replacement, point repairs and/or replacement of sewer service laterals, shall be performed in accordance with Section 333111, Public Sewerage Gravity Piping.

3.7 SEWER LINE REPLACEMENT

A. Work shall include the complete removal of all existing sewer pipelines and service laterals for the schedule line within the limits of the upstream and downstream manholes in accordance with Section 3.5.

B. Installation of new PVC sewer pipelines in accordance with Section 3.6.

C. All sewer service laterals shall be replaced from the main sewer pipeline to the private property line in accordance with Section 3.10 below.

D. A sewer repair coupling shall be provided at the limits of work for each sewer service lateral located at the property line and in accordance with Section 330509 Piping Specialties for Sewer Utilities.

E. The sewer service fitting shall be included with sewer pipeline replacement in accordance with Section 330509 Piping Specialties for Sewer Utilities.

F. New manhole tie-in connections shall be provided at both the upstream and downstream manholes in accordance with Section 3.13.

3.8 SEWER LINE RELOCATION

A. Where the rehabilitation schedule requires an existing line to be relocated, the Contractor shall layout the work in order to maintain the existing upstream and downstream invert elevations.

B. Installation of new PVC sewer pipelines in accordance with Section 3.6.

C. All sewer service laterals shall be replaced from the main sewer pipeline to the private property line in accordance with Section 3.10 below.

1. Where service laterals have to be replaced, the Contractor shall hold the invert grades at the property line and regrade the service laterals at a minimum of 2 percent from the property line toward the new sewer line alignment.

D. Upon completion of sewer pipeline relocations and tie-in of all service laterals, the Contractor shall abandon in place the existing sewer pipeline using flowable fill in accordance with Section 330500, Common Work Results for Utilities, at no additional cost to the Owner.

3.9 SEWER LINE POINT REPAIR

A. The Contractor is responsible for verifying locations in reference to the main sewer pipeline (distance from the upstream and downstream manholes) as shown on the plans.

B. For clay, cement and concrete type sewer pipelines, the limits of the starting and ending stations for the point repair shall be field adjusted to match existing pipe joints.

C. Work shall include the complete removal of all existing sewer pipelines and service laterals located within the limits of the point repair and in accordance with Section 3.5.

D. Installation of new PVC sewer pipelines in accordance with Section 3.6.

E. All sewer service lateral shall be replaced from the main sewer pipeline to the private property line in accordance with Section 3.10 below.

F. A sewer repair coupling shall be provided at each of the point repair in accordance with Section 330509 Piping Specialties for Sewer Utilities.

G. A sewer repair coupling shall be provided at the limits of work for each sewer service lateral located at the property line and in accordance with Section 330509 Piping Specialties for Sewer Utilities.

H. The sewer service fitting shall be included with sewer pipeline point repair in accordance with Section 330509 Piping Specialties for Sewer Utilities.

I. When the limits of the point repair are within four (4) feet of a sewer manhole, the point repair shall be extended to include the manhole and the manhole connection shall be replaced in accordance with section 3.13.

J. The Contractor shall inspect the sewer pipeline at the repair location to determine that all pipe requiring replacement within 10 feet of the repair has been replaced before reconnecting the sewer line and backfill operations begin.

3.10 SEWER SERVICE LATERAL REPLACEMENT

A. Sewer service laterals are to be replaced from the main sewer pipeline to the property line as indicated on the plans, any time a wye or tee connection is replaced as part of a sewer pipeline repair or replacement or otherwise as directed by the Engineer.

B. Sewer house service connections shall be six-inch pipe.

C. Service line point repairs are performed only on those portions of service lines that are located in an easement or right-of-way; no repairs to service lines shall be performed on private property.

D. The limits of the service connections shall be determined or verified by the Engineer in the field.

E. Service laterals shall be installed to match existing elevations and grade.

1. Service laterals with an existing grade flatter than 2 percent shall be re-graded, where possible, at a minimum slope of 2 percent or as approved by the Engineer; the Contractor shall match the existing elevation at the property line and re-grade the service lateral towards the main sewer pipeline.

F. Existing service laterals scheduled for replacement shall be removed in accordance with Section 3.5.

G. Installation of new service laterals shall be in accordance with Section 3.6.

H. The new service lateral shall be re-connected with the private house connection using a sewer repair coupling in accordance with Section 330509 Piping Specialties for Sewer Utilities.

I. The Contractor shall complete re-connection of all service lines within 24 hours.

3.11 SEWER REPAIR COUPLINGS

A. Refer to Section 330509 Piping Specialties for Sewer Utilities.

3.12 SEWER SERVICE FITTINGS

A. Refer to Section 330509 Piping Specialties for Sewer Utilities.

3.13 SEWER MANHOLE CONNECTIONS

A. Sewer Manhole Connections shall be made and conform to Section 333111 Public Sewerage Gravity Piping 3.7.

B. A flexible manhole adapter, conforming to Section 330509 Piping Specialties for Sewer Utilities, shall be fitted onto the PVC pipe and inserted into the manhole opening.

3.14 MAINTENANCE (NOT USED)

3.15 FIELD QUALITY CONTROL

A. Lay no pipe except in the presence of an inspector representing the Engineer.

B. Each time the work on the sewer is halted for more than one (1) hour, the ends of the pipe shall be sealed with a temporary plug, approved by the Engineer, to prevent foreign material from entering the pipe.

C. Do not allow water to run or stand in the trench while pipe laying is in progress or before the trench has been backfilled.

D. Do not at any time open up more trench than available pumping facilities are able to dewater.

E. Testing and Inspection:

1. After complete rehabilitation of sewer pipelines by means of full line replacement, including all connection sewer service laterals, the pipe shall be tested for acceptance in accordance with Section 330505, Sewer Utilities Testing.

2. After complete rehabilitation of sewer pipelines by any means, the work shall be CCTV inspected in accordance with Section 330130.16 CCTV Inspection of Sewers.

3. Repairs of any pipe segment not fully conforming to these Specifications must be immediately brought to the Engineer's attention.

4. The Contractor shall furnish a written proposed method of correction within 24 hours for approval by the Engineer.

3.16 PROTECTION

A. The Contractor shall carefully protect all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electric lines, or other utilities or structures in the vicinity of the work from damage at all times.

B. The Contractor shall take reasonable care during the initial excavation of the defective pipe so as not to disturb existing pipe that is still acceptable.

C. The Contractor shall carefully protect all new pipe in place from damage until backfill operations have been completed

3.17 CLEAN UP AND REMOVAL

A. The material from excavation to be wasted shall be loaded directly into trucks during excavation; do not stockpile on the street.

B. The Contractor shall dispose of portions of any piece of material removed during installation unless retained by the Engineer.

C. Upon completion of the Rehabilitation of Sewers, the Contractor shall fully clean and restore the site.

D. Sewers Flow Control shall be removed and sewer flow shall be normalized in accordance with Section 330130.03.

END SECTION 330130.73

SECTION 330130.76 – CURED-IN-PLACE PIPE LINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing Cured-In-Place Pipe (CIPP) Liners for rehabilitation of sewer pipelines and sewer service laterals.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to perform all CIPP activities.

C. Section Includes:

1. Cured-In-Place Pipe Liner Installation
2. Post CIPP Liner Installation
3. Reinstatement of Sewer Service Laterals

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020 Measurement and Payment.

B. Measurement:

1. Length Measurement: Measurements will be made as the horizontal length dimension of material installed, excluding overlap, and measured in linear feet. Irregular horizontal lengths will be measured as a summation of equivalent non-overlapping lines, arc lengths, or other applicable geometry.

2. Each Measurement: Measurements will be made per actual quantity of items fully installed, and measured per each. There will be no allowance for partial or fractional installations or quantities.

C. Payment:

1. Pipe Liner, CIPP: Payment for Pipe Liner, CIPP will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.
   a. Pipe Liner, CIPP is broken down into specific pay-items based on nominal pipe diameter as per the unit price schedule.

2. Service Lateral Liner, CIPP: Payment for Pipe Liner, CIPP will be made at the respective Contract unit bid price per linear foot as indicated in the drawings, installed in accordance

with these specifications and adjusted by the Construction Manager with acceptable field measurements.

3. Cut Liner to Restore Existing House Connection: Payment for Pipe Liner, CIPP will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

D. Abandonment of CIPP Lining

1. If pre-installation CCTV inspection reveals that no CIPP Lining is required in the pipe segment between manholes, then CIPP Lining shall be abandoned at no compensation to the Contractor. The Contractor will instead be measured and paid in accordance with Section 33 01 30.13, Sewer Line Cleaning and in accordance with Section 33 01 30.16, CCTV Inspection of Sewers.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Product Data:

1. A safety plan and MSDS sheets (Material Safety Data Sheets) for all hazardous chemicals used or expected to be on-site including resin, catalyst, cleaners and repair agents.
2. The Contractor's written warranties for the duration specified.

C. Shop Drawings:

1. Shop drawings, plans, equipment catalog data, and written descriptions detailing short and long-term properties (providing all supporting test data) of all component materials and composite materials, and:

a. CIPP lining supplier's name and a list of material manufacturers.
b. CIPP lining schedules including field-verified lengths and diameters for all CIPP linings and appurtenances required. Plans should include map(s) showing insertion points, equipment and storage locations, and field wet-out locations for all CIPP installations.
c. Detailed installation procedures including CIPP lining production schedule, acceptable inversion heads and pressures, inversion procedures, curing and cool-down procedures and temperatures, and times for each process stage.
d. If a field wet-out procedure will be used for liner impregnation, submit a complete description of the proposed wet-out procedure with detailed information on equipment and material storage locations, resin volumes and/or weights, liner length, start times, finish times, resin injection locations, and any other pertinent data documenting the wet-out procedure.
e. Procedure and materials to reinstate connecting sewers and laterals.

f. Detailed method for addressing CIPP sampling requirements including location and size of each sample, method of removal, and method of liner repair and procedure for testing CIPP Liner.
g. A complete list of service laterals, including relevant footage and diameter shall be submitted to the Owner and Engineer prior to initiating CIPP lining.

D. Design Data:

1. The Contractor shall calculate and submit to the Engineer for review after field verification of sizes and prior to ordering any material from the manufacturer, the required minimum thickness for the CIPP to be installed in each pipe reach based on the internal inspection data and the CIPP manufacturer's specifications.

2. Design data and specification data sheets listing all parameters used in the CIPP liner design and thickness calculations based on ASTM F 1216.

3. The contractor shall submit to the Engineer for review the lining manufacturer's complete design calculations for the liner, signed and sealed by a Professional Engineer registered in the State of Louisiana and certified by the manufacturer as to the compliance of his materials to the values used in the calculations. The buckling analysis shall account for the combination of dead load, live load, hydrostatic pressure and grout pressure (if any). The liner side support shall be considered as if provided by soil pressure against the liner. The existing pipe shall not be considered as providing any structural support. Modulus of soil reaction shall be 1000, corresponding to a moderate degree of compaction of bedding and a fine-grained soil as shown in AWWA Manual M45, Fiberglass Pipe Design.

4. Hydraulic Capacity - Overall, the hydraulic profile shall be maintained as large as possible. The CIPP shall provide at least 100 percent of the flow capacity of the original pipe before rehabilitation. In lieu of actual measurements, calculated capacities may be derived using commonly accepted equations and values of the Manning flow coefficients (designated "n" coefficients). The original pipe material and condition at the time of reconstruction will determine the Manning coefficient used in the host pipe. A Manning coefficient of 0.009 for a jointless, relatively smooth-wall cured-in-place pipe will be used for the lateral CIPP flow calculation.

A. Certifications:

1. Certification showing the Contractor (or lining Subcontractor) is currently licensed by the appropriate licensor to perform CIPP installation. All certifications shall be submitted to the Engineer before any materials are ordered.

   a. Contractor shall provide his references of previous project lists going back 3-years including his customer's names, owner's contact name, phone number, owner's project number, owner's project name and the list must include the number of laterals rehabilitated as well as the number and type of connection seals installed.
   b. The Contractor shall employ a minimum of 1 foreman and 2 crew members with experience of at least 50 liner installations.

2. Certification stating CIPP tube has been manufactured in accordance with ASTM F 1216 and resin is suitable for its intended use.

3. The Contractor shall provide certification that he has the required equipment to reinstate the service connections as specified herein.

B. Test Reports:

1. Provide manufacturer's test reports of CIPP sample(s).
2. Copies of previous physical properties tests as well as chemical resistance tests.

C. Manufacturer's Instructions

1. Manufacturers' shipping, storage, and handling recommendations for all CIPP system components.
2. Manufacturer's Instructions for temperature control, CIPP handling, insertion, curing, trimming and finishing, and QA/QC procedures.
3. Technical procedure or information regarding the control and mitigation of shrinkage and wrinkling during installation and cure of CIPP liner.

D. Sampling Procedures:

1. Sampling Procedures and locations for obtaining representative samples of the finished liner shall be provided by the Contractor before acceptance.

E. Field Inspection Records

1. Pre-installation and post-installation CCTV Inspection reports as specified herein.

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM D 543: Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents.
2. ASTM D 638: Standard Test Method for Tensile Properties of Plastics.
3. ASTM D 790: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
4. ASTM D 2990: Standard Test Method for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics.
5. ASTM D 5813: Standard Specification for Cured-In-Place Thermosetting Resin Sewer Piping Systems.
6. ASTM F 1216: Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.
7. ASTM F 1743: Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pull-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP).
8. ASTM F 2019: Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP).

B. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition.
2. Sewer Overflow Abatement Plan, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE

A. The Contractor shall have a minimum of two (2) years' experience in sewer line repairs by CIPP liner installation. The CIPP liner product manufacturer shall have a minimum installation history of two (2) years and 100,000 linear feet of furnished product including the sizes applicable for this project. Verifiable experience shall be submitted to the Owner upon request.

B. All CIPP linings shall be from a single manufacturer. The Engineer and/or Owner may inspect the CIPP lining after delivery and reject any or all of the lining products if they fail to meet the requirements specified herein.

1.9 REGULATORY REQUIREMENTS

A. Occupational and Safety Health Administration (OSHA)

1. CFR 29, Part 1910.146: Permit Required Confined Spaces

1.10 FIELD CONDITIONS

A. CIPP Lining shall not be installed if the Contractor does not have sufficient Sewer Flow Control to eliminate all sewer flow from the pipe for the required duration of pipe installation and curing or if the sewer pipelines have not been sufficiently cleaned as per Section 330130.13, Cleaning of Sewers.

1.11 DELIVERY, STORAGE AND HANDLING

A. The materials shall be delivered to the job site in original unopened packaging and clearly labeled with the manufacturer's identification and printed instructions.

B. The Contractor shall comply with the pipe manufacturer's printed recommendations for delivery, storage, and handling of all products.

C. The Contractor shall keep products safe from damage. The Contractor shall promptly remove damaged products from the job site and replace damaged products with undamaged goods.

D. The Contractor shall exercise adequate care during transportation, handling and installation to ensure the CIPP material is not torn, cut, or otherwise damaged. If any part or parts of the CIPP material becomes torn, cut or otherwise damaged before or during insertion, it shall be repaired or replaced in accordance with the manufacturer's recommendations and approval by the Engineer before proceeding at no additional cost to the Owner.

E. If the flexible tube is impregnated with resin at the factory, it shall be transported, installed, and cured before expiration of the shelf life.

F. The CIPP lining shall be maintained at a proper temperature in refrigerated facilities and protected from ultraviolet light at all times prior to installation to prevent premature curing. Any CIPP lining showing evidence of premature curing shall be rejected for use and immediately removed from the site.

1.12 WARRANTY

A. The Contractor shall furnish an extended warranty for liner materials from the liner manufacturer for a total of five (5) years from the contractual date of Final Acceptance. After four (4) years from the contractual date of Final Acceptance, the Engineer will randomly select 10 % of the work for warranty confirmation CCTV inspections by the Contractor. These inspections are to be submitted to the Engineer at least six (6) months prior to the expiration of the Maintenance Bond. If defective work is identified, an additional 10% of the work shall be identified for inspection. CCTV inspections are to submitted within 60 days from Engineer's notification. This process will continue until the Engineer is satisfied that no additional inspections are necessary.

   1. If, at any time during the warranty period, any leakage, cracking, loss of bond, or other discontinuity is identified, the contractor shall make repairs acceptable and at no additional cost to the Owner.

B. A 10% Maintenance Bond must be maintained for a 5 year warranty period. Any defects within the warranty period must be covered by this bond.

PART 2 - PRODUCTS

2.1 MANUFACTURERS (NOT USED)

2.2 DESIGN CRITERIA

A. The liner shall be designed in accordance with the procedures of ASTM F 1216. All material properties used in design calculations shall be long-term (time-corrected) values.

B. The liner shall be structurally designed for a fully deteriorated host pipe/direct bury condition with no bonding to the existing pipe, prism loading, and live traffic loading. The liner shall be designed for the following conditions:

   1. Minimum Service Life: 50 years
   2. Soil Density: 120 pounds per cubic foot (pcf)
   3. Groundwater Depth: 3 feet below existing grade (ft)
   4. Live Loadings: AASHTO HS-20-44 live loading due to traffic, unless more stringent live loadings are applicable.
   5. Soil Modulus: 1,000 pounds per square inch (psi)
   6. Minimum Safety Factor: 2.0
   7. Ovality Factor: 2.0%
   8. Maximum Deflection: 5.0% in vertical axis
   9. Long Term Modulus Reduction Factor: 50%

C. The fully cured liner shall inherit the following minimum structural parameters:

   1. Minimum structural standards:

      a. Flexural Strength, ASTM D 790, 4,500 psi
      b. Flexural Modulus of Elasticity, Short-Term, ASTM D 790, 250,000 psi
      c. Flexural Modulus of Elasticity, Long-Term (50 year), ASTM D 790, 125,000 psi

D. The design for the CIPP shall recognize any non-uniform cross section and the liner bifurcation present at the spring line of the pipe. Accounting for this condition by the use of an ovality reduction factor alone is unacceptable.

2.3 ASSEMBLIES

A. All CIPP lining products shall comply with the latest versions of ASTM F 1216 - Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube, or ASTM F 1743 - Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP).

B. Wall thickness of the CIPP liners shall be the thickness calculated by the manufacturer in accordance with ASTM F 1216 or the minimum thicknesses indicated in the following listing:

1. 6-inch to 8-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 20-ft: 6 mm thickness

2. 10-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 15-ft: 6 mm thickness
   b. Depth of Sewer to Top of Pipe 15-ft to 20-ft: 7.5 mm thickness

3. 12-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 6 mm thickness
   b. Depth of Sewer to Top of Pipe 10-ft to 17-ft: 7.5 mm thickness
   c. Depth of Sewer to Top of Pipe 17-ft to 20-ft: 9 mm thickness

4. 15-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 7.5 mm thickness
   b. Depth of Sewer to Top of Pipe 10-ft to 15-ft: 9 mm thickness
   c. Depth of Sewer to Top of Pipe 15-ft to 20-ft: 10.5 mm thickness

5. 18-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 9 mm thickness
   b. Depth of Sewer to Top of Pipe 10-ft to 15-ft: 10.5 mm thickness
   c. Depth of Sewer to Top of Pipe 15-ft to 20-ft: 12 mm thickness

6. 21-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 10.5 mm thickness
   b. Depth of Sewer to Top of Pipe 10-ft to 20-ft: 15 mm thickness

7. 24-inch diameter sewer

   a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 12 mm thickness
   b. Depth of Sewer to Top of Pipe 10-ft to 20-ft: 15 mm thickness

8. 27-inch diameter sewer

a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 12 mm thickness
b. Depth of Sewer to Top of Pipe 10-ft to 20-ft: 18 mm thickness

9. 30-inch diameter sewer

a. Depth of Sewer to Top of Pipe 3-ft to 10-ft: 15 mm thickness
b. Depth of Sewer to Top of Pipe 10-ft to 20-ft: 21 mm thickness

10. 36-inch diameter sewer

a. Depth of Sewer to Top of Pipe 3-ft to 20-ft: 24 mm thickness

C. Chemical Resistance:

1. The liner shall be fabricated from materials which, when complete, are chemically resistant to and will withstand internal exposure to domestic sewage having a pH range of 5 to 11 and temperatures up to 125-degrees Fahrenheit.

2. CIPP liners shall meet the minimum chemical resistance requirements in accordance with ASTM F 1216.

2.4 MATERIALS

A. General

1. The Contractor shall be responsible for control of all materials and process variables to provide a finish CIPP possessing the minimum properties specified in ASTM F 1216, and as required herein.

B. Liner

1. The flexible tube shall be one or more layers of needled felt or equivalent non-woven material manufactured under quality controlled conditions set by the manufacturer, and be capable of holding resin and withstanding installation pressures and curing temperatures. The tube shall be compatible with the resin system used, and shall contain no intermediate layers that delaminate after resin curing.

2. The outside layer of the tube shall be coated with an impermeable material compatible with the resin and fabric.

3. Tube material shall be able to stretch to fit irregular pipe sections and negotiate bends. The tube shall be fabricated to a size so that, when installed, it will fit snugly inside the circumference and length of the existing sewer and produce the required thickness after the resin is cured.

4. The minimum length of the flexible tube shall be as necessary to effectively and fully span the distance between manholes, with allowance for proper stretching or shrinkage due to pressure or expansion.

5. The tube shall contain no intermediate layers that may delaminate after resin curing. It shall not be possible to separate any layers with a probe or knife blade such that the layers separate cleanly or the probe or knife blade moves freely between the layers.

6. Allowance should be made for circumferential stretching during the installation and shrinkage of resin during curing and aging so that the final cured product is snug against the wall of the host pipe and free of fins and buckles.

7. The wall color of the interior pipe surface of the liner shall be of a light color with reflective nature to allow proper CCTV inspection.

C. Resin

1. The felt tubing shall be vacuum impregnated with a thermosetting resin system. The resin used shall be compatible with CIPP system used, and designated for use in sewers.

2. The resin shall be able to cure in the presence of water and the initiation temperature for cure shall not be more than 180° F.

3. The resin shall be a general purpose thermosetting polyester, vinyl ester, or epoxy resin and catalyst system that provides the cured physical strengths and properties specified herein. The resin shall not contain fillers, except those required for viscosity control or fire retarding.

4. The resin used to impregnate the tube shall produce a cured tube which shall be resistant to abrasion from solids, grit, and sand in wastewater. The resin shall have proven resistance to the municipal wastewater environment.

D. Expanding Hydrophilic Rubber End Joint Seal

1. The rubber end joint seal shall be an extended hydrophilic rubber compounded from chloroprene (Neoprene) rubber and hydrophilic resin, which expands on contact with water.

2. The rubber joint seal shall be bonded with adhesive on one face to hold it in place during assembly.

3. On contact with water, the rubber shall swell a minimum of 8 times its original volume, if necessary, and mold itself to completely fill any gaps and exert pressure evenly to ensure the seal. High compression or bolt up forces shall not be necessary to effect a complete and watertight seal.

E. Chemical Grout

1. The chemical grout shall be a hydrophilic liquid that is water reactive and will change from a free-flowing liquid to a water impermeable elastomeric solid upon injection to stop excessive infiltration at the point where the CIPP liner enters the manholes. A reaction (curing) which produces a chemically stable and non-biodegradable, tough, flexible gel. The chemical grout shall be a urethane liquid in uncured form suitable for pumping with a moderate viscosity and variable gelling and curing times. The polyurethane chemical grout shall be Scotch-Seal 5610 by 3M, Avanti Av-254, or approved equal.

2. Acceptable urethane base gel chemical sealing materials shall meet or exceed the following requirements:

a. The liquid shall have a solids content of 80% and a specific gravity of 1.04 to 1.11.
b. The liquid shall have a viscosity of 300 to 1,000 centipoise at 70° F.
c. The water used to react to the pre-polymer should have a pH of 5 to 9.
d. Gel times shall be in accordance with the manufacturer's recommendations.
e. The grout shall have the ability to increase viscosity, density, gel strength and resistance to shrinkage by the use of additives in the reaction water.

3. A reinforcing agent shall be added to the reaction water at the manufacturer's suggested rate. This agent is intended to increase the polyurethane gel's resistance to wet/dry cycles, freeze/thaw cycles, and solid movement stresses. The reinforcing agent shall be appropriate for the specific grout product that is to be used.

4. Additional chemical grout additives such as catalysts or accelerators as needed to make the grout function properly shall be as manufactured by 3M, Avanti, or approved equal and shall be used in a manner approved by the manufacturer.

2.5 ACCESSORIES (NOT USED)

2.6 SOURCE QUALITY CONTROL

A. The outside reach of CIPP liner tube shall be labeled by the liner manufacturer with the location of the liner manufacturer, the name of the project, the liner thickness, the liner diameter, the liner length, and the location where it is to be installed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sewer system is not surcharged prior to the start of work.

3.2 PREPARATION

A. Contractor shall provide Sewer Flow Control, as specified in Section 330130.03, Sewer Flow Control prior to the start of CIPP Lining of Sewer for the duration of the liner installation and curing periods.

B. Contractor shall submit a Traffic Control Plan to the approving authority (DPW, DOTD, etc.) for review and approval prior to the closing of any streets. The approved traffic control plan shall be fully executed prior to the performance of CIPP Lining.

C. The Contractor shall provide adequate sewer line cleaning as specified in Section 330130.13, Cleaning of Sewers prior to the start of CIPP Lining.

1. It shall be the responsibility of the Contractor to remove all internal debris such as solids and roots and clean the existing sewer line prior to installation of the liner

2. Upon written approval from the Engineer the Contractor may receive payment for Obstruction Removal per each item removed as specified in Section 330130.13 Cleaning of Sewers.

D. The Contractor shall perform a Pre-Rehabilitation CCTV inspection in accordance with Section 330130.16, CCTV Inspection of Sewers to record sewer line defects requiring repair prior to the installation of the CIPP Liner as well as to note the location, station and orientation, and size of all active sewer service laterals to be reinstated.

1. Any sewer pipeline defects noted during the CCTV inspection that require repair prior to the installation of the CIPP Liner shall be approved by the Engineer and/or Owner and performed in accordance with Section 310130.73, Rehabilitation of Sewers.

2. The Contractor shall clear the line of obstructions such as solids, protruding gaskets, dropped joints, protruding service connections or collapsed pipe that will prevent the insertion of the liner, as noted during pre-rehabilitation CCTV inspection. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment in accordance with Section 330130.13, Cleaning of Sewers, the Contractor, upon approval from the Engineer, shall make a point repair to uncover and remove or repair the obstruction in accordance with Section 310130.73, Rehabilitation of Sewers prior to lining.

3. CCTV inspection of service connections must be from inside the main line sewer up into the lateral. Inspection from cleanouts, excavations, or other access points is not permitted, unless prior approval is obtained from the Engineer. All lateral inspections shall extend from the mainline to the property line, or until the camera is unable to proceed further

4. Service connection inspections shall be recorded on the same DVD as the mainline recording.

5. A service connection shall be considered abandoned only if the connection has been capped or otherwise purposefully blocked. Connections not connecting to any building or surface drains shall not be assumed abandoned without confirmation from the Owner.

6. In the event that the status of a connection is inconclusive, the Contractor shall introduce dye from a sanitary or drain fixture and witness the travel path of the dye using both the lateral and mainline cameras.

7. In the event that a service connection is identified as being cross-connected, the Engineer shall be notified immediately, and the location of the cross-connection shall be determined using dye testing and shall then be clearly marked and labeled on the surface using paint.

8. The Contractor shall indicate the location of the service connections as follows:

   a. In the event no inspection chamber or cleanout is present at property line, the Contractor shall, by using a sonde/locator, clearly mark by staked hub (in grassed areas) or by PK nail (in roadways or concreted areas) and paint, where the service connection crosses at the property line.
   b. In the event a junction is present on the service connection, the location of the junction(s) shall be clearly marked and labeled on the surface with paint. All branches of the service connection shall be inspected, if possible, up to the property line.
   c. In the event a collapse or blockage is present preventing further movement of the camera, or that may otherwise prevent use of trenchless rehabilitation equipment, the location of such shall be clearly marked and labeled on the surface with paint.

E. The Contractor shall obtain and setup temporary water, if required.

F. The Contractor shall position his equipment and layout the site so as to not obstruct any fire hydrants or otherwise prevent its use in case of a fire in the area served by the hydrant.

G. The Contractor shall carry out his/her operations in accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving the entering of confined spaces.

H. The Contractor shall take field measurements to verify the existing pipe diameter, ovality and length prior to manufacturing liners. The manufacturer shall incorporate these measurements into the manufacturing process of the liner. The outside of the flexible tube shall be marked along its full length at regular intervals not to exceed five (5) feet.

I. If the invert of a sewer is eroded more than 2 inches, it shall be filled with grout to match the surrounding pipe surface.

J. The Contractor shall trim protruding laterals so the service connection is flush to within ¼ inch of the internal pipe wall. Lateral cutting shall be documented by internal inspection methods.

1. The Contractor shall ensure that the host pipe is not damaged during lateral trimming operations and document each location subjected to lateral trimming in the (CCTV) inspection.

2. Protruding service connections that cannot be trimmed shall be replaced with approval of the Engineer and/or Owner in accordance with Section 310130.73, Rehabilitation of Sewers prior to lining.

3.3 CURED IN PLACE PIPE LINER INSTALLATION

A. Installation shall be accomplished by inversion or winched-in-place methods and cured in place by ambient temperature or circulating hot water or steam to produce a hard, jointless, impermeable pipe repair.

B. Installation procedures shall be in accordance with the latest versions of ASTM F 1216 - Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube or ASTM F 1743 - Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP), and the manufacturer's recommendations.

C. The Contractor shall designate a location where the reconstruction tube will be vacuum impregnated prior to installation. The Contractor shall allow the Engineer to inspect the materials and "wet out" procedure. Sufficient excess resin shall be used in accordance with the latest version ASTM F 1216. A roller system shall be used to uniformly distribute the resin throughout the tube.

D. Before installation begins, the tube manufacturer shall provide the minimum pressure required to hold the tube tight against the existing conduit, and the maximum allowable pressure so as

not to damage the tube. Once the installation has started the pressure shall be maintained between the minimum and maximum pressures until the installation has been completed.

E. The Contractor shall install a Hydrophilic Rubber End Seal at each pipe end prior to installing the uncured CIPP lining. The Engineer will require verification that the hydrophilic seals are being properly installed.

F. The curing of the CIPP must take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture level, and thermal conductivity of soil). The post-cure temperature should be held for a period as recommended by the resin manufacturer, during which time the recirculation of the water and cycling of the head source to maintain the temperature continues.

G. The bond between all CIPP layers shall be strong and uniform. All layers, after cure, shall be completely saturated with resin.

H. The CIPP shall be cooled to a temperature below 100 degrees F before relieving the hydrostatic head. Care should be taken in release of the static head so that a vacuum will not be developed that could damage the newly installed liner.

I. Where practicable, liners can be installed in continuous runs through manholes where there are two of more continuous sewer segments requiring lining, especially to connect several short segments with continuous lining.

J. The temperature of water discharged to the sewer system from processing liners shall not exceed 125 degrees F maximum, or the level allowed by State or local standards if less than 125 degrees F.

K. Cut and trim the new lining at each manhole wall. Seal the lining to the manhole wall with a sealant material.

L. The Contractor shall furnish on-site on a continuous basis one (1) additional operational robotic cutter assembly train and key spare components as a “stand-by” unit in the event of primary equipment breakdowns.

3.4 POST CIPP LINING INSTALLATIOIN

A. After installation of the liner in a full segment pipe, a minimum of one (1) inch of the liner material shall be left to protrude from the wall of the entrance and the exit manhole.

B. The Contractor shall install a joint seal at all manhole inlet and outlet connections to seal the area where the line enters or leaves each manhole. The Contractor shall use chemical grout to dress up around the end of the liner. This space may be sealed with a mechanical seal, chemical seal, or combination of both. The method used shall be as approved by the Engineer.

C. The upstream and downstream manholes shall be inspected and any holes or voids in the manhole wall immediately surrounding the new liner shall be sealed with a hydrophilic rubber joint seal and chemical grout as specified herein. The Engineer shall approve the seal.

D. Where liners of any type are installed in two or more continuous manhole segments, the liner invert through the trough of intermediate manholes shall be left intact. Final finishing of the

installation in those intermediate manholes shall require removal of the top of the exposed liner and neat trimming of the liner edge where it touches the lip of the manhole bench.

E. Portions of any piece of liner material removed during installation shall be available for inspection and retention by the Engineer. Any unrestrained samples shall not be used for testing purposes.

3.5 REINSTATEMENT OF SEWER SERVICE LATERALS

A. The Contractor shall reinstate openings for all drop assemblies after lining the mainline sewer.

B. The Contractor shall reinstate all sewer service laterals except for those shown on the plans as "Abandoned". Services that are abandoned, but reinstated, shall be plugged in a manner acceptable to the Engineer and at no additional expense to the Owner.

C. The Contractor must keep prepare and maintain an Excel spreadsheet listing of all services that have been reinstated. The listing shall be organized by line segment ID and provide the distance and clock position for each service reinstatement.

D. Service connections shall be reinstated without excavation, utilizing a remotely controlled cutting device monitored by a CCTV camera.

E. After the liner has been installed, in the event that the Contractor chooses to temporarily reinstate service lines, all active existing services may be temporarily reinstated by punching through the liner from the interior of the pipeline. Temporary reinstatements shall allow normal flow from the service line into the mainline.

F. Final reinstatement of all active services within a rehabilitated line segment shall be performed internally using a robotic cutter within 48 hours of curing and buffed to a minimum of 95% of the original service opening size. The finished opening shall contain no jagged edges.

G. All coupons shall be recovered at the downstream manhole and removed.

3.6 MAINTENANCE (NOT USED)

3.7 FIELD QUALITY CONTROL

A. Testing

1. After complete curing of the CIPP liner and during cooling, the Contractor shall test the liner in accordance with Section 330505, Sewer Utilities Testing.

2. After completing lining and service reinstatement, every liner shall be CCTV inspected in accordance with Section 330130.16, CCTV Inspection of Sewers.

3. Segments not fully conforming to these Specifications must be immediately brought to the Engineer's attention.

4. The Contractor shall furnish a written proposed method of correction within 24 hours for approval by the Engineer.

B. Inspection

1. The Board will have a certified independent testing lab analyze finished liner samples taken from the restrained sample located at the manhole invert. The Contractor shall furnish samples directly to the Construction Manager within 2 days after installation.

   a. A minimum of one (1) sample shall be taken from every four (4) segments installed. The restrained samples shall be a minimum of one (1) foot in length. The Contractor shall place a sample mold aligned with and the same size as the existing sewer in such a manner as to allow the installation of the liner material through the restraining sample mold. This sample mold shall be made of SDR 35 PVC, C900 PVC or a Construction Manager approved equal.
   b. The resin-impregnated tube shall be installed and cured through this restraining mold in order to obtain a liner sample representative of the actual liner physical characteristics. All samples shall be labeled with the project number, date of installation, pertinent manhole numbers, nominal thickness, flow direction, and location of installation. The Contractor and Construction Manager shall acknowledge receipt and transfer of all samples.
   c. Tests in accordance with the latest versions of the ASTM standards for flexural strength, flexural modulus and wall thickness will be conducted by the independent testing lab.
   d. A sample will be provided by the Contractor to the Construction Manager for all CIPP installation over 18" inches in diameter to be tested in accordance with ASTM standards.

C. Acceptance of Work

1. The finished CIPP liner shall be fully rounded and free from visible defects, including but not limited to damage, deflection, holes, delamination, ridges, cracks, uncured resin, foreign inclusions or other objectionable defects as determined by the Construction Manager.

2. There shall be no visible infiltration through the liner, or around the liner at manhole or service line connections. The Contractor shall be required to repair any visible leaks in a manner approved by the Construction Manager.

3. The Contractor shall refrain from removing the sewer flow bypass pumping system until both the Construction Manager and Owner have formally notified the Contractor that the work and finished product is accepted.

4. Correction of failed CIPP or CIPP deemed defective from post-installation inspection or test reports for structural values, thickness, etc., shall be repaired at no extra cost to the Owner. Method of repair, which may require field or workshop demonstration, shall be approved by the Owner.

D. Non-Conforming Work

1. If either the thickness, flexural strength, or flexural modulus of elasticity of the installed CIPP liner are less than 80% of the approved design values, the product is considered unacceptable. A method of repair or replacement shall be submitted for review and

approval by the Construction Manager. All work required to remedy non-conforming work shall be at no additional expense to the Owner.

2. For all instances, as described in this Subsection, other than thickness, flexural strength, and flexural modulus of elasticity, where the CIPP liner is deemed unacceptable, the Contractor shall submit a method of repair or replacement for review and approval by the Construction Manager. All work required to remedy non-conforming work shall be at no additional expense to the Owner.

3. Where post-installation thickness measurements and/or physical property testing is performed, payment for installed cured-in-place pipe shall be made in accordance with the following:

   a. If the thickness, flexural strength, or flexural modulus of elasticity of the installed CIPP are 90% or greater than the approved design values, full payment shall be made accordingly.
   b. If the thickness, flexural strength, or flexural modulus of elasticity of the installed CIPP are between 90% and 80% of the approved design values, with all at least 80% of the approved design values, payment shall be based on:

      i. Adjusted Unit Price = Unit Price Bid x Value Factor, where:

         - Value Factor = [* thickness + * flexural strength + * flexural modulus of elasticity] / 3.

            ◊ * Insert actual measured or tested result expressed as a percentage of specified value. Maximum allowable percentage is 100%.

4. If a defect repair is required after the liner has cured, a short segment tube shall be used to splice across the defect repair. The overlap on each defect shall be twice the diameter, or 12 inches, whichever is greater.

3.8 PROTECTION

A. The Contractor shall take necessary precautions to protect sewer line segments and manholes from damage that may be imposed by the improper installation of the CIPP Liner.

3.9 CLEAN UP AND REMOVAL

A. Upon completion of the CIPP Lining, the Contractor shall fully clean and restore the site.

B. Sewer Flow Control shall be removed and sewer flow shall be normalized in accordance with Section 330130.03, Sewer Flow Control.

END OF SECTION 330130.76

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SECTION 330130.83 – REHABILITATION OF MANHOLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of the rehabilitation of manholes for the purpose or restoring structural integrity, eliminating water infiltration, and providing corrosion protection by means of grout repairs to walls and benches, infiltration control, vertical and horizontal adjustment of frames and covers and cementitious lining of the interior wall.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required for rehabilitation of manholes.

C. Section Includes:

1. Rehabilitation of Manhole Structures
2. Rehabilitation of Manhole Covers and Frames
3. Removal of Flush Valves
4. Installation of Manhole Structural Cementitious Liners
5. Isolation Pads

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020 Measurement and Payment.

B. Measurement:

1. Length Measurement: Measurements will be made as the horizontal length dimension of material installed, excluding overlap, and measured in linear feet. Irregular horizontal lengths will be measured as a summation of equivalent non-overlapping lines, arc lengths, or other applicable geometry.

2. Each Measurement: Measurements will be made per actual quantity of items fully installed, and measured per each. There will be no allowance for partial or fractional installations or quantities.

3. Vertical Foot Measurement: Measurements will be made as the vertical height dimension of material installed, excluding overlap, and measured in vertical foot height. Irregular vertical heights will be measured as a summation of equivalent non-overlapping lines or other applicable geometry.

C. Payment:

1. Manhole Repair and Adjustment, Up to 6", Reusing the Existing Casting: Payment for Manhole Repair and Adjustment, Up to 6", Reusing the Existing Casting will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

2. Manhole Repair and Adjustment, Over 6", Reusing the Existing Casting: Payment for Manhole Repair and Adjustment, Over 6", Reusing the Existing Casting will be made at the respective Contract unit bid price per vertical foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

3. Manhole Repair and Adjustment, Up to 6", Excluding the Existing Casting: Payment for Manhole Repair and Adjustment, Up to 6", Excluding the Existing Casting will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

4. Manhole Repair and Adjustment, Over 6", Excluding the Existing Casting: Payment for Manhole Repair and Adjustment, Over 6", Excluding the Existing Casting will be made at the respective Contract unit bid price per vertical foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

5. Manhole, Replace Frame: Payment for Manhole, Replace Frame will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

6. Manhole, Replace Cover: Payment for Manhole, Replace Cover will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

7. Inspection and Removal of Flush Valve Device: Payment for Inspection and Removal of Flush Valve Device will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

8. Location and Selective Removal of Water Line from Main to Manhole: Payment for Location and Selective Removal of Water Line from Main to Manhole will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

9. Manhole Rehabilitation, Cementitious Liner, Partial Depth: Payment for Manhole Rehabilitation, Cementitious Liner, Partial Depth will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these

specifications and adjusted by the Construction Manager with acceptable field measurement.

10. Manhole Rehabilitation, Cementitious Liner, Full Depth: Payment for Manhole Rehabilitation, Cementitious Liner, Full Depth will be made at the respective Contract unit bid price per vertical foot as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

D. There is no direct measurement or payment for Rehabilitation of Manhole Structures. This work is considered incidental to the rehabilitation of manholes and the cost of this work shall be included in the unit item bid price for the associated work included within this section.

E. Measurement and Payment for Isolation Pads will be made under the respective specifications sections for site pavement removal and installation.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

1. Manufacturer's Certifications verifying qualification of liner installer.

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM C 109: Standard Test Method for Compressive Strength of Hydraulic Cement Mortars
2. ASTM C 293: Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading)
3. ASTM C 321: Standard Test Method for Bond Strength of Chemical-Resistant Mortars
4. ASTM C 403: Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
5. ASTM C 496: Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
6. ASTM C 596: Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement
7. ASTM C 990: Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants

B. Department of Public Works, City of New Orleans (DPW), current edition.

1. General Specifications for Street Paving, current edition.
2. Standard Drawing MC2, current edition.

C. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition.

2. Sewer Overflow Abatement Plan, current edition.
3. Standard Drawing 3143-E-1, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE (NOT USED)

1.9 REGULATORY REQUIREMENTS

A. Occupational and Safety Health Administration (OSHA)
   1. CFR 29, Part 1910.146: Permit Required Confined Spaces

1.10 FIELD CONDITIONS

A. Manhole Rehabilitation shall not be performed if the Contractor does not have sufficient Sewer Flow Control to completely perform the work without spill as per Section 330130.03.

1.11 DELIVERY, STORAGE AND HANDLING

A. The materials shall be delivered to the job site in original unopened packaging and clearly labeled with the manufacturer's identification and printed instructions.

B. The Contractor shall handle and store all material in accordance with manufacturer instructions and shall dispose of all wastes in accordance with applicable regulations.

C. The Contractor shall keep products safe from damage. The Contractor shall promptly remove damaged products from the job site and replace damaged products with undamaged goods.

1.12 WARRANTY

A. The Contractor shall furnish an extended warranty for manhole rehabilitation for a period of one (1) year from the date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS (NOT USED)

2.2 DESIGN CRITERIA (NOT USED)

2.3 ASSEMBLIES (NOT USED)

2.4 MATERIALS

A. Manhole Frames and Covers shall comply with Section 330581 Metallic Castings for Utility Structures.

B. Structural Cementititous Liner

   1. The material applied to the surface of the manhole shall be a lightweight structurally reinforced cementitious blend of siliceous aggregates, non-metallic fibers and other additives. The material shall produce a monolithic liner that is impervious to the flow of

water, resistant to sulfide attack, and restores structural integrity to the existing manhole walls.

2. The material shall be Permacast MS-10,000, Quadex QM-1s, SCM Reliner MSP, Strong Seal MS-2A, or approved equal

3. The material shall meet the following physical property requirements:

a. Compressive strength (28 day)	ASTM C 109	3,000 psi
b. Flexural Strength	ASTM C 293	600 psi.
c. Bond strength (1hr)	ASTM C 321	130 psi.
d. Tensile Strength	ASTM C 496	300 psi.
e. Shrinkage	ASTM C 596	0%

4. The product must be factory blended requiring only the addition of water at the job site and shall not include any basic ingredient that exceeds the maximum allowable EPA limit for any heavy metal. Water used to mix product shall be clean and potable.

5. The material shall be designed for the selected method of application.

2.5 ACCESSORIES

A. Hydraulic Cement:

1. The hydraulic cement shall be a fast-setting, volume-stable, waterproofing, cementitious plugging material. The material shall consist of hydraulic cement, graded silica aggregates, and special plasticizing/accelerating agents. It shall not contain chlorides, gypsum, plasters, iron particles, aluminum powder or gas-forming agents, nor shall it promote the corrosion of steel.

2. The material shall meet the following physical property requirements:

a. Compressive strength (1hr)	ASTM C 109	1,000 psi
b. Bond strength (1hr)	ASTM C 321	50 psi.
c. Set time (max)	ASTM C 403	60 to 90 sec
d. Shrinkage	ASTM C 596	0%

3. The product must be factory blended requiring only the addition of water at the job site and shall not include any basic ingredient that exceeds the maximum allowable EPA limit for any heavy metal. Water used to mix product shall be clean and potable.

B. Hydraulic Cement for Patching:

1. The hydraulic cement shall be a premixed non-shrink, cement-based, patching material. The material shall consist of hydraulic cement, graded silica aggregates, special plasticizing/accelerating agents, which has been formulated for vertical or overhead use. It shall not contain chlorides, gypsums, plasters, iron particles, aluminum powder, or gas-forming agents, nor shall it promote the corrosion of steel.

2. The material shall meet the following physical property requirements:

a. Compressive strength (1hr)	ASTM C 109	800 psi
b. Compressive strength (28 day)	ASTM C 109	3,000 psi
c. Set time (max)	ASTM C 403	30 min
d. Shrinkage	ASTM C 596	0%

3. The product must be factory blended requiring only the addition of water at the job site and shall not include any basic ingredient that exceeds the maximum allowable EPA limit for any heavy metal. Water used to mix product shall be clean and potable.

C. Chemical Grout:

1. The chemical grout shall be a hydrophilic liquid that is water reactive and will change from a free flowing liquid to a water impermeable elastomeric gel upon injection to stop excessive infiltration to a manhole. The reaction (curing) shall produce a chemically stable and non-biodegradable, tough, flexible gel. The chemical grout shall be a urethane liquid in uncured form with a moderate viscosity suitable for pumping and variable curing times.

2. The polyurethane chemical grout shall be Scotch-Seal 5610 by 3M, Avanti AV-254, or approved equal.

3. The material shall meet or exceed the following requirements:

   a. The liquid shall have a solids content of 80% and a specific gravity of 1.04 to 1.11.
   b. The liquid shall have a viscosity of 300 to 1000 centipoise at 70° F.
   c. Gel times shall be in accordance with the manufacturer's recommendations.
   d. The grout shall have the ability to increase viscosity, density, gel strength and resistance to shrinkage by the use of additives in the reaction water.

4. A reinforcing agent shall be added to the reaction water at the manufacturer's suggested rate. This agent is intended to increase the polyurethane gel's resistance to wet/dry cycles,

freeze/thaw cycles, and solid movement stresses. The reinforcing agent shall be appropriate for the specific grout product that is to be used.

5. Additional chemical grout additives, such as catalysts or accelerators, needed to make the grout function properly shall be as manufactured by 3M, Avanti, or approved equal and shall be used in a manner approved by the manufacturer.

D. Manhole Casting Embedment Sealant:

1. The sealant shall be a premium, extruded, bituminous, tacky rubber sealant in rope form for use on manholes as an embedment material for the frame to adjusting brick/mortar corbel.

2. Sealant shall conform to the latest version of ASTM C990 and Federal Specification SS-S-210A – Sealing Compound, Preformed Plastic, for Expansion Joints and Pipe Joints, Type I.

3. The material shall meet the following physical property requirements:

a. Elongation, min, Initial	300%
b. Elongation, min, at two weeks in total water immersion	300%
c. Service Temperature Range	-20 to 200° F
d. Storage Life	Indefinite

2.6 SOURCE QUALITY CONTROL

A. Complete records of inspections, examinations and tests shall be kept and submitted to the Engineer.

B. The Engineer reserves the right to perform any of the inspections set forth herein where deemed necessary to assure that material and services conform to the prescribed requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sewer system is not surcharged prior to the start of work.

C. Manholes Containing Flow Monitoring Equipment:

1. Drawings may not show locations of flow monitoring equipment.

2. If a manhole contains any mechanical hardware or electrical flow monitoring equipment, the Contractor shall immediately notify the Engineer.

3. Work in such manholes shall be rescheduled at no additional cost to the Owner until the Owner has removed the equipment and the Contractor has been given further instructions.

4. Any damage to installed equipment, resulting from the Contractor's failure to adhere to the above, shall be repaired by the Owner at the Contractor's expense.

D. Field Location of Manholes

1. The Contractor shall be responsible for locating and uncovering all manholes.

2. If the Contractor is unable to locate a manhole after due diligence with measuring tapes, metal detectors, and probing, the Contractor shall notify the Engineer in writing for Owner assistance.

3. The Contractor is cautioned that manholes that are not part of the sanitary sewer system being rehabilitated may be located within the project limits.

4. No payment will be made to the Contractor for work in manholes not indicated on the drawings or as directed in writing by the Engineer.

3.2 PREPARATION

A. The Contractor shall provide Sewer Flow Control, as specified in Section 330130.13, Sewer Flow Control prior to the start of Rehabilitation of Manholes for the duration of the rehabilitation work.

B. The Contractor shall submit a Traffic Control Plan to the approving authority (DPW, DOTD, etc) for review and approval prior to the closing of any streets. The approved traffic control plan shall be fully executed prior to the performance of Rehabilitation of Manholes.

C. Any and all pavement saw cutting and removal shall be in accordance with Contract Documents. The minimum pavement area to be saw cut, removed and replaced for manhole frame adjustments and/or replacements is 6-ft by 6-ft.

D. The Contractor shall position his equipment and layout the site so as to not obstruct any fire hydrants or otherwise prevent its use in case of a fire in the area served by the hydrant.

E. The Contractor shall carry out his/her operations in accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving the entering of confined spaces.

F. Manholes shall be cleaned as per the requirements in Section 330130.13, Cleaning of Sewers. Where applicable, cleaning methods and products shall be in accordance with the manufacturer's written instructions for any products installed.

3.3 REHABILITATION OF MANHOLE STRUCTURES

A. Rehabilitation of manhole structures shall be performed on manholes scheduled for frame adjustment, frame replacement, partial liner or a full liner.

B. Manhole Steps

1. All existing non stainless steel manhole steps shall be cut smooth with the wall or be removed completely prior to lining.

C. Infiltration Control

1. After surface preparation and prior to the application of mortars and coatings, infiltration shall be stopped by use of an approved chemical grout.

2. All large holes or voids around steps, joints or pipes, all spalled areas and all holes caused by missing or cracked brick shall be patched and all missing mortar shall be patched using hydraulic cement for patching.

   a. Any loose bricks, mortar, grout or other materials shall be removed and the area mechanically cleaned, exposing a sound sub-base for patching application.

3. All cracks not subject to movement and greater than 1/16 inch in width shall be grouted with approved hydraulic cement.

D. Manhole Benches And Channels

1. The Contractor shall remove obstructions and all loose grout and rubble and other materials from benches, troughs and pipe inverts prior to shaping the channel.

2. The Contractor shall form a smooth, U-shaped channel having a minimum depth of one-half exiting pipe diameter and connecting the inlet and exiting pipes of the manhole using an approved manhole rehabilitation material.

3. The Contractor shall make finished benches and channels smooth and without defects which would allow for accumulation of debris.

4. The Contractor shall rebuild channel if required by reshaping, repairing slope of shelves or benches.

5. Work shall include aligning inflow and outflow ports in such a manner as to prevent the deposition of solids at the transition point.

6. All inverts shall follow the grades of the pipe entering the manhole.

7. Changes in direction of the sewer and entering branch or branches shall have a true curve of as large a radius as the size of the manhole will permit, but will be shaped to allow easy entrance of maintenance equipment including buckets, CCTV, etc.

3.4 REHABILITATION OF MANHOLE COVERS AND FRAMES

A. Rehabilitation of manhole covers and frames shall be performed where scheduled and shall be performed prior to the installation of a manhole structural liner.

B. The Contractor shall adjust and reset manhole frames horizontally and vertically to proper grade.

C. This adjustment shall include the removal and delivery of existing metal or plastic adjusting rings to the Owner.

D. The top of the frame shall be flush with the natural ground in unpaved areas.

E. In paved areas, the frame shall be set at a grade and slope that is consistent with the adjoining pavement, allowing for a smooth transition in all directions from pavement to frame and cover.

F. The Contractor shall apply an approved Manhole Casting Embedment Sealant between the top adjustment ring and the manhole frame.

G. An approved hydraulic cement for patching material shall be applied between the adjustment rings and patching the chimney up to 6" below the bottom of the casting to fill voids and cracks.

3.5 REMOVAL OF FLUSH VALVES

A. The Contractor is required to investigate each of the flush valve manholes listed to determine if a water service line is present, ensure that the water service line is disconnected from the water main and then remove all flush valve hardware and water piping from the manhole, repair the manhole wall as needed and restore the site to pre-construction condition in accordance with the restoration specifications in this contract.

B. If present, the water line shall be removed from the manhole, including the spigot, wall penetration and the service line for a length of 2-ft outside the manhole. The water line penetration shall be grouted closed from both inside and outside the manhole.

C. If the water line service is live, the contractor shall locate the connection at the water main and physically disconnect the service from the main. Contractor shall refer to the S&WB unit sheets to facilitate in locating the water line.

D. At the water main, the connection may or may not be connected to the main with a corporation cock. If a corporation cock is present, the corporation cock should be turned off and the connection removed from the cock. The cock should be inspected to determine if it is leaking. If there is no corporation cock, or if the corporation cock is leaking it will be necessary to shut down the main, remove the direct connection or leaking corporation cock and seal the tap hole with a full circular stainless steel repair clamp approved by the Engineer.

E. The remainder of the water service line shall be abandoned in place.

F. Once the water connection is determined to be dead, the contractor shall remove the flush valve and water piping within the manhole and seal any holes in the manhole wall or invert with a non-shrink grout.

3.6 INSTALLATION OF STRUCTURAL CEMENTITIOUS LINER

A. The cementitious lining system shall result in a monolithic structure conforming to the interior shape and contour of the existing manhole and covering all interior surfaces. The lining system shall be completely watertight and free of any joints or openings other than pipe inlets, pipe outlets, and the rim opening. The junction of the lining material with the pipe material at the inlets and outlets shall be watertight.

B. The lining system shall be installed in accordance with the manufacturer's recommendation to withstand groundwater pressures.

1. Full depth cementitious lining shall be applied to manhole wall, bench and channel surfaces where scheduled.
2. All cementitious linings shall have a minimum thickness of 5/8 inch.
3. All multi-component polymeric lining shall have a minimum thickness of 1/2 inch.

C. Manholes requiring lining shall be cleaned no more than 2 hours before lining.

1. The surface prior to lining shall be damp without noticeable free water droplets or running water.
2. Materials shall be applied to a minimum uniform thickness insuring that all cracks, crevices, and voids are filled and a smooth surface remains after light troweling.

D. For spray applied lining, the first application shall take an initial set (disappearance of surface sheen which could be 15 minutes to 1 hour depending on ambient conditions) before the second application, if necessary, to assure a minimum total finished thickness of 5/8 inch.

1. For centrifugally cast lining, the rotating casting applicator shall be positioned to evenly apply the material and shall be withdrawn at a rate to ensure a final minimum thickness of 5/8 inch.
2. A depth gauge shall be used during application, at various locations, to verify the required thickness.

E. The Contractor shall apply light troweling to compact the material into voids and set the bond.

1. The surface shall be troweled to a smooth finish with care taken not to over trowel and bring additional water to the surface.

F. The bench covers used to catch debris shall be removed and the bench and channel lined to produce a gradual slope from the walls to the channel with the thickness at the edge of the channel being no less than 5/8 inch.

1. The wall and channel intersection shall be rounded to a uniform radius along the circumference of the intersection.

G. No application shall be made to a frozen surface or if freezing is expected to occur within the manhole for 24 hours after application.

1. If ambient temperatures are in excess of 90° F, precautions shall be taken to keep the mix temperature at the time of application below 90° F.

H. The application shall have a minimum cure time as recommended by the manufacturer before being subjected to active sewer flow.

I. Liner samples shall be taken by the Board assigned testing laboratory on a weekly basis or as directed by the Engineer.

J. Structural Cementitious Liner Schedule

1. Partial Depth Liners shall include the application of a structural cementitious liner for two (2) vertical feet beginning at the top of the wall, below the bottom of the frame (including below spacers and adjustment rings) and extended vertically downward for two feet.

2. Full Depth Liners shall include the application of a structural cementitious liner for the full height of the manhole beginning at the top of the wall, below the bottom of the frame (including below spacers and adjustment rings) and extended vertically downward to include application onto the bench and trough.

3.7 ISOLATION PADS

A. All manholes within concrete paving areas shall be isolated (boxed out) by means of an approved square isolation pad in accordance with the DPW General Specifications for Street Paving and DPW Standard Drawing MC2 and Contract Documents.

3.8 MAINTENANCE (NOT USED)

3.9 FIELD QUALITY CONTROL

A. Testing and Inspection:

1. After complete rehabilitation of manholes by means of full depth liner, the manhole shall be tested for acceptance in accordance with Section 330505, Sewer Utilities Testing.
2. Repairs of any manhole lining not fully conforming to these Specifications must be immediately brought to the Engineer's attention.
3. The Contractor shall furnish a written proposed method of correction of any defects within 24 hours for approval by the Engineer.

3.10 PROTECTION

A. The Contractor shall carefully protect all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electric lines, or other utilities or structures in the vicinity of the work from damage at all times.

B. The Contractor shall not allow sand, debris, or runoff to enter the sewer system.

3.11 CLEAN UP AND REMOVAL

A. Manhole covers, frames, and adjusting rings from abandoned, broken, or adjusted castings shall remain the property of the Owner. The Contractor shall deliver salvaged items at a time and to a property location designated by the Owner.

B. The Contractor may dispose of sludge, sand, debris, grit, and liquid wastes resulting from performance of operations in this contract at the East Bank Sewage Treatment Plant (6501 Florida Avenue).

1. There will be no charge for disposal at this location.
2. The Contractor may utilize and coordinate other licensed disposal sites at no additional cost to the Owner, upon approval by the Engineer.

C. Upon completion of the Rehabilitation of Manholes, the Contractor shall fully clean and restore the site.

D. Sewer Flow Control shall be removed and sewer flow shall be normalized in accordance with Section 330130.03.

END OF SECTION 330130.83

SECTION 330500 – COMMON WORK RESULTS FOR UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing Common Work Results for Utilities as described herein.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to provide all common work results for utilities.

C. Section Includes:

1. Flowable fill.
2. Piped utility demolition.
3. Piping Installation.
4. Piping Joint Construction.

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020 Measurement and Payment.

B. Measurement:

1. Volume Measurement: Measurements will be made as the product of horizontal width, length dimensions and depth of material installed, measured in cubic yards. Irregular surface areas will be measured as a summation of equivalent non-overlapping rectangles, triangles, circles, partial circles, fillets, or other applicable geometry multiplied by the average nominal depth.

C. Payment:

1. Flowable Fill: Payment for Flowable Fill will be made at the respective Contract unit bid price per cubic yard as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

1.4 DEFINITIONS

A. Flowable Fill: Low-strength-concrete, flowable-slurry mix, shall be designed as a permanent material, not designed for future removal.
B. PE: Polyethylene plastic.
C. PVC: Polyvinyl chloride plastic.

1.5 SUBMITTALS (NOT USED)

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM C 33: Standard Specification for Concrete Aggregates
2. ASTM C 94: Standard Specification for Ready-Mixed Concrete
3. ASTM C 150: Standard Specification for Portland Cement
4. ASTM C 618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
5. ASTM D 3212: Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

B. Sewerage and Water Board of New Orleans

1. General Specifications and Standard Drawings, current edition.
2. Sewer Overflow Abatement Plan, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE (NOT USED)

1.9 REGULATORY REQUIREMENTS (NOT USED)

1.10 FIELD CONDITIONS

A. Sanitary Sewer Rehabilitation shall not be performed if the Contractor does not have sufficient Sewer Flow Control to completely perform the work without spill as per Section 330130.13.

1.11 DELIVERY, STORAGE, AND HANDLING

A. The materials shall be delivered to the job site in original unopened packaging and clearly labeled with the manufacturer's identification and printed instructions.

B. The Contractor shall handle and store all material in accordance with manufacturer instructions and shall dispose of all wastes in accordance with applicable regulations.

C. The Contractor shall keep products safe from damage. The Contractor shall promptly remove damaged products from the job site and replace damaged products with undamaged goods.

D. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

E. Store plastic pipes in area protected from direct sunlight. Adequately block and support stored pipe to prevent sagging and bending.

1.12 COORDINATION

A. Coordinate and cooperate with other contractors and agencies performing work in close proximity to the Work on this project.

1.13 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 FLOWABLE FILL

1. Refer to Section 312323 Fill, Backfill and Compaction for excavatable and non-excavatable flowable fill requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

3.2 PIPED UTILITY DEMOLITION

A. Disconnect, demolish, and remove piped utility systems, equipment, and components indicated to be removed.

1. Piping to be removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to be abandoned in place: Drain piping. Fill abandoned piping with flowable fill, and cap or plug piping with same or compatible piping material.
3. Equipment to be removed: Disconnect and cap services and remove equipment.

B. If pipe or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.3 PIPING INSTALLATION

A. Install piping according to the following requirements and utilities Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, and in compliance with Owners' standard drawings.

C. Install piping at indicated slopes.

1. In cases where piping is being rehabbed, replaced or relocated, match existing inverts.

D. Install piping free of sags and bends.

E. Install fittings for changes in direction and branch connections.

3.4 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and utilities sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

3.5 MAINTENANCE (NOT USED)

3.6 FIELD QUALITY CONTROL (NOT USED)

3.7 PROTECTION

A. The Contractor shall use care that his performance in Common Work Results for Utilities does not cause damage to existing utilities to remain or newly installed utilities to be commissioned.

3.8 CLEAN UP AND REMOVAL

A. The Contractor shall maintain a clean and safe work space on a daily basis.

B. Contractor shall fully restore any site modifications performed to accommodate the sewer flow control system.

END OF SECTION 330500

SECTION 33 05 05 – SEWER UTILITIES TESTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing common Testing Procedures for Sewer Utilities.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to provide complete sewer utilities testing.

C. Section Includes:

1. Air Pressure Testing
2. Mandrel Deflection Testing
3. Rigid Metal Bar Deflection Testing
4. Manhole Vacuum Testing
5. Testing Schedule

1.3 PRICE AND PAYMENT PROCEDURES

A. There is no direct measurement or payment for Sewer Utilities Testing. This work is considered incidental to respective unit bid item being tested in accordance with this specification.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Test Reports:

1. The Contractor shall submit the testing plan and testing results for each sewer line segment tested.
2. The Contractor shall submit the testing plan and testing results for manhole vacuum testing.

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM D 3034: Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
2. ASTM F 1417: Standard Practice for Installation Acceptance of Plastic Non-pressure Sewer Lines Using Low-Pressure Air

B. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE

A. Testing: Materials testing shall be based upon applicable ASTM Test Methods and AWWA Standards referenced herein. Costs of such inspection and tests shall be borne by the Contractor.

1.9 REGULATORY REQUIREMENTS

A. Occupational and Safety Health Administration (OSHA)

1. CFR 29, Part 1910.146: Permit Required Confined Spaces
2. CFR 29, Part 1926, Subpart P: Excavations

1.10 FIELD CONDITIONS

A. Testing shall not be performed until the sewer line installation and all connected sewer service laterals have been completed.

1.11 DELIVERY, STORAGE AND HANDLING (NOT USED)

1.12 COORDINATION

A. The Contractor shall notify the Construction Manager 24 hours in advanced of any pipe testing; pipe testing shall be performed during normal business hours and shall not be performed on weekends or holidays.

1.13 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sewer system work is complete, clean and ready for testing.

C. Contractor shall determine the current groundwater depth prior to conducting air pressure testing.

3.2 PREPARATION

A. The Contractor shall furnish all materials, equipment and labor for the purpose of setting up and performing of all testing described herein.

B. The Contractor shall ensure the pipe to be subject to testing is fully complete, cleaned and free of any dirt or debris.

3.3 MAINTENANCE (NOT USED)

3.4 AIR PRESSURE TESTING

A. Perform this test only on sewer mains that have been fully replaced from manhole to manhole.

B. The Contractor shall furnish all materials, equipment, and labor for making an air test. Air test equipment shall be approved by the Construction Manager.

C. The Contractor may conduct an initial air test of the sewer main line after densification of the backfill but prior to installation of the service laterals. Such tests will be considered to be for the Contractor's convenience and need not be performed in the presence of the Construction Manager.

D. Each section of sewer shall be tested between successive manholes by plugging and bracing all openings in the pipe and the upper ends of all service laterals. Prior to insertion in the sewer, each plug shall be checked with a soap solution to detect any air leakage. If any leaks are found, the air pressure shall be released and the leaks eliminated or the plug replaced.

E. The test of the pipe and service laterals shall be conducted in the presence of the Construction Manager. Testing of pipe, regardless of the pipe material, shall be performed in accordance with ASTM F 1417.

F. Air pressure in the sewer line shall be increased to 4.0 psi above groundwater pressure (1.0 psi for each 2.3 feet of water elevation above the highest point of the pipe). Do not allow the pressure at any point in the pipe to reach 9 psi under any circumstances. Allow the pressure to stabilize for 5 minutes, then reduce the pressure to 3.5 psi above groundwater pressure and start the test. Stop the air release and record the decrease in pressure over time.

G. Pass/Fail Criterion: The time taken for the pressure to decrease from 3.5 to 2.5 psi above groundwater pressure shall be equal to or greater than the time below.

Nominal Pipe Diameter, inches	Minimum Time, min:sec	Length for Minimum Time, ft	Increased Time for Longer Lengths, seconds per foot
4	3:46	597	.0380
6	5:40	398	0.854

Nominal Pipe Diameter, inches	Minimum Time, min:sec	Length for Minimum Time, ft	Increased Time for Longer Lengths, seconds per foot
8	7:34	298	1.520
10	9:26	239	2.374
12	11:20	199	3.418
18	17:00	133	7.692
24	22:40	99	13.674
30	28:20	80	21.366
36	34:00	66	30.768

H. Testing criteria of pipe 12-inches and larger may be adjusted if the Construction Manager approves. The air pressure decrease may be 0.5 psi instead of 1.0 psi, and the corresponding minimum times will be one-half of the tabulated times.

I. For pipe larger than 24-inches, air pressure tests may be performed on each joint. The time for the pressure to fall from 3.5 to 2.5 psi, both above groundwater pressure, shall not be less than 10 seconds regardless of pipe diameter.

J. For sewer service lateral lines 6” to 8” the contractor is required to air test, a minimum of 10% of the laterals rehabilitated on this project. The Contractor shall note that based on the judgment of the Engineer, additional tests may be requested. The Air tests must be done in bunches of at least five (5) at a time. The air test must be completed within two (2) weeks of the installation of the liner being tested; the air test shall consist of the following:

1. That Contractor shall install a plug at the sanitary sewer temporary lateral access point, and at the main sewer main connection.
2. Air should be added to the plugged section of the lateral until air pressure reaches 4.0 psi.
3. Allow at least two (2) minutes for the air temperature to stabilize, adding air to maintain the initial pressure.
4. Shut off the air supply after stabilizing the temperature.
5. Air test failures shall be defined as failure to maintain as least 3.5 psi for three (3) minutes. If a lateral does not pass the air test the contractor is required to repair the liner until it can pass the test.
6. The air testing is at the discretion of the Engineer and the Engineer reserves the right to require additional testing for a failed test, at no cost to the Owner

K. If the time is less than the allowable time, the pipe will be considered defective and shall be repaired and retested and the Contractor’s expense.

3.5 MANDREL DEFLECTION TESTING

A. Perform this test only on sewer mains that have been fully replaced from manhole to manhole.

B. The Contractor shall furnish all materials, equipment, and labor for making a mandrel deflection test.

C. The Contractor shall test all PVC pipe 30-inches and smaller for deflection, joint displacement, and other obstructions by passing the mandrel through the pipe not less than 30 days after completion of the trench backfill, but prior to final acceptance testing of the pipe.

D. The Owner shall have the option of passing the mandrel at any time after installation and final backfill of the trenches and before final acceptance.

E. Mandrel testing shall conform to the latest version of ASTM D-3034.

F. The outside diameter of the mandrel shall taper out to 95% of the inside diameter of the pipe. For the purpose of determining the mandrel diameter, the inside diameter of the pipe shall be the average outside diameter of the pipe minus 2 minimum wall thicknesses for OD controlled pipe and shall be the average inside diameter for ID controlled pipe, all dimensions in accordance with the respective pipe standards. Statistical or "tolerance packages" shall not be considered in mandrel sizing.

G. The Contractor shall fabricate a ½-inch thick, 3-inch wide steel bar proving ring. The steel bar shall be bent to a circle 0.02-inches larger than the mandrel diameter calculated above. The Contractor shall furnish the proving ring to the Engineer before any pipe is installed. The Contractor shall pass the mandrel through the proving ring at any time determined by the Owner. The mandrel shall pass through the proving ring with no greater than 0.02-inch clearance, and if it does not, the mandrel will be considered defective and shall be replaced at no additional cost to the Owner.

H. Pipe with a diameter less than the mandrel will be considered defective and the Contractor shall replace it at no additional cost to the Owner.

3.6 RIGID METAL BAR TEST

A. Perform this test only on sewer mains that have been fully replaced from manhole to manhole.

B. The Contractor shall furnish all materials, equipment, and labor for making a rigid metal bar deflection test.

C. The Contractor shall test PVC pipe larger than 30-inches for deflection, joint displacement, and other obstructions by utilizing a rigid metal bar or other method approved by the Engineer. The test shall be conducted prior to final acceptance testing of the pipe but not less than 30 days after completion of the trench backfill.

D. The average inside diameter shall be measured before the pipe is installed and backfilled.

E. The length of the rigid metal bar shall be 90% of the measured average inside diameter.

F. The Contractor shall take one (1) measurement at the mid-point of each installed pipe segment.

G. Deflection is defined as the difference between vertical inside diameter in the pipe before and after installation and backfilling. Pipe with a vertical inside diameter less than the length of the rigid metal bar will be considered defective and the Contractor shall replace it at no additional cost to the Owner.

3.7 MANHOLE VACUUM TESTING

A. Install the vacuum test head on top of the manhole. Install and brace sealing devices on influent and effluent pipes

B. With a vacuum pump, draw a vacuum of 10 inches of mercury, deactivate the pump, and measure the time in seconds for the vacuum to drop to 9 inches of mercury.

C. Compare the time to the table below.

Minimum Time, min: sec				
Manhole Depth, ft	Manhole Diameter, inches			
	36	48	60	72
8	0:14	0:20	0:26	0:33
10	0:18	0:25	0:33	0:41
12	0:21	0:30	0:39	0:49
14	0:25	0:35	0:48	0:57
16	0:28	0:40	0:52	1:7
18	0:32	0:45	0:59	1:13
20	0:35	0:50	1:5	1:21
22	0:38	0:55	1:12	1:30
24	0:42	0:59	1:18	1:37
26	0:46	1:4	1:25	1:45
28	0:49	1:9	1:31	1:53
30	0:53	1:14	1:38	2:1

D. If the time is less than the time in the table, the manhole is defective, and it shall be repaired and retested until it is acceptable at no additional cost to the Owner.

3.8 FIELD QUALITY CONTROL (NOT USED)

3.9 PROTECTION (NOT USED)

3.10 CLEAN UP AND REMOVAL (NOT USED)

3.11 TESTING SCHEDULE

A. Sewer Line Point Repairs

1. Post-Installation CCTV Inspection in accordance with Section 330130.16, CCTV Inspection of Sewers

B. Sewer Line Replacements less than 30 inches in diameter

1. Air Pressure Testing
2. Mandrel Deflection Testing
3. Post-Installation CCTV Inspection in accordance with Section 330130.16, CCTV Inspection of Sewers

C. Sewer Line Replacements greater than 30 inches in diameter

1. Air Pressure Testing
2. Rigid Metal Bar Deflection Testing
3. Post-Installation CCTV Inspection in accordance with Section 330130.16, CCTV Inspection of Sewers

D. Sewer Lining

1. Air Pressure Testing
2. Post-Installation CCTV Inspection in accordance with Section 330130.16, CCTV Inspection of Sewers

E. Sewer Lateral Lining

1. Air Pressure Testing, 10% of lines as specified in Paragraph 3.4.J
2. Post-Installation CCTV Inspection in accordance with Section 330130.16, CCTV Inspection of Sewers

F. Sewer Manhole Full Depth Liners

1. Manhole Vacuum Testing

END OF SECTION 330505

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SECTION 330509 - PIPING SPECIALTIES FOR SEWER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing all sewer piping specialties; fittings, couplings, connectors, etc. and incidentals, complete and in place, in accordance with the Contract Documents.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required for the installation of necessary sewer appurtenances.

C. Section Includes:

1. Vacuum breakers.
2. Drain valves.
3. Specialty valves.
4. Flexible connectors.

1.3 PRICE AND PAYMENT PROCEDURES

A. There is no direct measurement or payment for the installation of sewers repair couplings, service connection fittings (wyes or tees), saddle fittings (wyes or tees) or manhole connections. This work is considered incidental to the rehabilitation of sewers and installation of new sewerage lines and the cost of this work shall be included in the unit item bid price for the associated work included within this section.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Submit in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Product Data: For each type of product.

C. Shop Drawings: For domestic water piping specialties.

1. Include diagrams for power, signal, and control wiring.

1.6 REFERENCE STANDARDS

A. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition

B. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM A 240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
2. ASTM C 425: Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings
3. ASTM C 1173: Standard Specification for Flexible Transition Couplings for Underground Piping Systems
4. ASTM D 3034: Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
5. ASTM D 5926: Standard Specification for Poly (Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems
6. ASTM F 477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
7. ASTM F 679: Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings

C. NSF/ANSI 14: Plastics Piping System Components and Related Materials

1.7 DELIVERY, STORAGE AND HANDLING

A. The materials shall be delivered to the job site in original unopened packaging and clearly labeled with the manufacturer's identification and printed instructions.

B. The Contractor shall handle and store all material in accordance with manufacturer instructions and shall dispose of all wastes in accordance with applicable regulations.

C. The Contractor shall keep products safe from damage. The Contractor shall promptly remove damaged products from the job site and replace damaged products with undamaged goods.

D. Fittings shall be lowered into trench by means of rope, cable, chain, or other means without damage. Cable, rope, or other devices used for lowering fitting into trench, shall be attached around exterior of fitting for handling. Under no circumstances shall the cable, rope, or other device be attached through the fitting interior for handling or shall pipe or fittings be dropped or dumped into the trench.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PIPING SPECIALTIES

A. All bronze/brass fittings, connectors, corporation stops and appurtenances shall be of domestic manufacture, shall be made of lead free bronze/brass, and meet all requirements of AWWA, ASTM, and ANSI for use in sewer systems.

2.2 PERFORMANCE REQUIREMENTS (NOT USED)

2.3 TEES, CLEANOUTS AND PLUGS

A. Unless otherwise specified or noted on the Drawings, tees, cleanouts, and stoppers or plugs shall be the same material used to repair the main sewer and have an inside diameter of the same size as the existing line, except that it shall in no case have a diameter smaller than 6-inches. The plug and installation shall be able to withstand all test pressures involved without leakage.

1. The Contractor shall provide the Engineer with the exact location of each clean out and cap installed.

2.4 COUPLINGS, REDUCERS, AND NIPPLES

A. Couplings shall be Ford Pack Joint Brass Service Coupling Cat. No. CB4-44 or approved equal.

B. Flexible Repair Coupling

1. Connections between dissimilar pipe materials are to be jointed with rigid non-shear couplings as specified herein or, when not available, with flexible elastomer couplings as specified herein.

   a. Material shall be Elastomeric Polyvinyl Chloride.
   b. Fitting shall conform to ASTM C 1173.
   c. For connections to clay sewer pipelines, the rubber portion of the couplings shall also meet the requirements of ASTM C 425.
   d. Fitting shall be secured to both the mainline pipe and the service lateral with the use of manufacturer provided stainless steel bands, grade 316.
   e. The bands for attaching the couplings to pipes shall be 316 series stainless steel and conform to the latest version of ASTM A 240.
   f. The shear ring shall be 300 series stainless steel and conform to the latest version of ASTM A 240

C. Reducers and Nipples shall be brass and of the appropriate size as indicated on the Drawings.

2.5 FITTINGS

A. The fittings for a solid wall PVC pipe shall be the same inside diameter as the solid wall PVC with a SDR of 35.

B. All sewer fittings and accessories shall conform to the requirements of ASTM D 3034 or ASTM F 679 and be furnished by the pipe supplier and shall be bell and/or spigot compatible with the pipe. The stiffness of the fittings shall not be less than the stiffness of the adjoining pipe.

C. ¾-inch Meter Clamping Outlet Fitting, Ford Dwg. 1358

D. Fittings, 6” – 15” Diameter:

1. All fittings for PVC pipe shall be full body SDR 35 and conform to the requirements of ASTM D 3034.
2. Rubber gaskets for compression type joints for PVC pipe and fittings shall conform to the requirements of ASTM F 477.
3. The ring groove and gasket ring shall be compatible with PVC pipe ends.

E. Fittings, 18” – 36” Diameter:

1. All fittings for PVC pipe shall be full body SDR 35 and conform to the requirements of ASTM F 679.
2. Rubber gaskets for compression type joints for PVC pipe and fittings shall conform to the requirements of ASTM F 477.
3. The ring groove and gasket ring shall be compatible with PVC pipe ends

2.6 FLEXIBLE TAP SADDLES

A. Flexible Tap Saddles shall be Fernco Flexible Tap Saddle or approved equal and conform to ASTM D 5926.

B. Flexible tap saddles are only to be installed on previously CIPP lined sewerage piping. Where CIPP lining is to occur after a point repair a standard wye or tee shall be used.

C. Service saddle to be installed on angle.

D. Flexible Tap Saddle Fittings:

1. Sewer service lateral connections to previously installed sewer pipelines shall be with a Flexible Tap Saddle Wye or Tee.

   a. The selection of a wye or tee shall be made to match the existing fitting or changed by field determination if the service lateral required field adjustments.
   b. Material shall be Polyvinyl Chloride.
   c. Fitting shall conform to ASTM D 5926.

E. The bands for attaching the couplings to pipes shall be 316 series stainless steel and conform to the latest version of ASTM A 240.

2.7 MANHOLE ADAPTERS

A. Sanitary sewer piping with tie-ins into sanitary sewer manholes shall be fitting with a Flexible Manhole Adapter

1. Material shall be Elastomeric Polyvinyl Chloride.
2. Fitting shall conform to ASTM D 5926.

PART 3 - EXECUTION

3.1 EXAMINATION

A. All necessary Examination prior to the Rehabilitation of Sewers Pipelines shall be conducted in accordance with Section 333111 Public Sewerage Gravity Piping.

3.2 PREPARATION

A. All necessary Preparation prior to the Rehabilitation of Sewers Pipelines shall be conducted in accordance with Section 333111 Public Sewerage Gravity Piping.

3.3 INSTALLATION

A. Tees, Cleanouts, Plugs

1. Wherever two pipe sections are to be joined, sewer flow control utilized, a line abandoned, or a sewer service lateral is installed a tee, cleanout, or plug shall be installed per the manufacturer's recommendations.
2. After installation, check the work to ensure that the pipe joints are vertically and horizontally aligned with the existing pipe and that the tees, cleanouts, plugs are tight and evenly fitted.

B. Flexible Repair Couplings

1. Wherever dissimilar pipe materials are joined, cut the replacement pipe to a length ½" less than the overall length of the section being replaced and the Contractor shall provide a flexible repair coupling in accordance with section 2.4.B.
2. Install the pipe in the trench, thoroughly clean the ends of existing and replacement pipe, and install repair couplings as per the manufacturer's installation instructions.
3. After installation, check the work to ensure that the replacement pipe is vertically and horizontally aligned with the existing pipe and that the elastomeric couplings and stainless steel shear ring are tight and evenly fitted.
4. There is no direct measurement or payment for the installation of sewer repair couplings

C. Sewer Service Fittings

1. Fittings shall be installed utilizing standard installation procedures.
2. Fittings shall be carefully connected to pipe or other facility, and joint shall be checked to insure a sound and proper joint.
3. Sewer service laterals shall be connected to the main sewer pipeline by only the use of full bodied wye or tee fittings.
4. The sewer service fittings shall meet the same requirements of the sewer pipelines as specified in Section 333111 Public Sewerage Gravity Piping.
5. There is no direct measurement or payment for the installation of sewer service fittings.

D. Flexible Tap Saddle

1. The use of saddles to connect the house service to the main will not be permitted unless the pipe has been previously lined.
2. Sewer service laterals for previously lined pipes shall be connected to the main line by only the use of a flexible tap saddle fittings as per section 2.6.C. Lines that have been previously lined shall not be cut to accommodate full body fittings.
3. Carefully remove the existing wye from around the liner. Is necessary, grind the perimeter of the liner opening to remove jagged edges.
4. Position the sale over the liner opening and align the inside surface of the fitting with the lower edge of the opening before tightening the stainless steel bands.
5. Once the fitting is correctly in place, install the pressure kit and verify that each band has been properly tightened.

END OF SECTION 330509

SECTION 33 05 34

COMPRESSION FIT HDPE PIPE LINING

PART 1 – GENERAL

1.01 SECTION INCLUDES

Renewal of existing pipelines by compression fit HDPE pipe lining process.

1.02 UNIT PRICES

A. Measurement for compression fit lining is on a linear foot basis for the length of pipe being lined.

B. Refer to Measurement and Payment, for unit price procedures.

1.03 REFERENCES

A. ASTM F714 – Polyethylene (PE).

B. Cuts or gouges per ASTM F585

C. HDPE Resin PE4710 as characterized by ASTM 03035

D. Ductile iron fittings comply with AWWA C110

E. Stiffener inserts per ASTM

1.04 DEFINITIONS

Compression fit lining: Replacement of pressurized pipeline systems by insertion of compression fit HDPE pipe into an existing host main pipeline.

1.05 SYSTEM DESCRIPTION

Compression fit lining allows a new compression fit high density polyethylene (HDPE) pipe to be placed inside a new or existing pressurized pipeline. The system uses HDPE pipe which has an outside diameter slightly larger than the inside diameter of the pipe to be renewed. After sections of PE are butt fused together to form a continuous pipe, the PE pipe is pulled through a reduction die, roller box, or similar device which temporarily reduces its diameter within the elastic limits of HDPE. This allows the HDPE pipe to be pulled through the existing pipeline. After the HDPE pipe has been pulled completely through the host pipe, the external force is removed and the HDPE pipe returns toward its original diameter until it presses tightly

against the inside wall of the host pipe. Relaxation of the HDPE pipe will be a natural process. No forced reversion will be allowed using either water, steam, heat or other means. The tight fitting HDPE pipe results in a flow capacity close to or greater than the original pipeline design.

1.06 QUALITY ASSURANCE

A. In order to assure quality execution of the compression fit HDPE pipe lining method, the contractor must show proof of at least 3 projects in the last 36 months using Compression fit HDPE pipe lining technology.

B. For a process to be considered as acceptable and an "or equal", a minimum of 500,000 linear feet of successful pressurized piping system installation in the US must be documented to assure commercial viability.

C. The contractor and/or his subcontractor shall not have less than five years of active experience in the installation of compression fit HDPE pipe lining and shall have experience of a minimum of 30,000 linear feet of 30-inch diameter or larger pressure pipes as required for this project. One project reference must be of 42-inches or larger.

1.07 CONTRACTOR CERTIFICATION

In order to assure quality execution of the method, the contractor shall submit the following certifications:

1. Certificate of training endorsed by the manufacturer of the constant tension pull equipment.

2. Certificate of training endorsed by the manufacturer of thermal fusion equipment in butt fusing of HDPE pipe and evidence of training with electro-fusion couplings.

3. Certificate of training endorsed by the supplier or manufacturer of HDPE electro-fusion fusion couplers to be used in the method. In lieu of certificate, evidence of training may be substituted.

1.08 SUBMITTALS

A. The Contractor shall submit his proposed methods of construction for excavating, dewatering, sheeting, shoring and bracing, and backfilling which he plans on using to perform the work included in the contract documents. A plan is required for the insertion and receiving pits for compression fit HDPE lining. The plan shall be signed and stamped by a Professional Engineer. The plan shall include but not be limited to:

1. Type of major excavation equipment.

2. Sheeting, shoring and bracing plan.

3. Calculations that demonstrate the sheeting, shoring and bracing of pits will withstand the pulling forces which will be exerted onto them from the compression fit HDPE lining operations.

4. Dewatering plan.

5. Hauling equipment, and proposed excavation quantities.

6. Proposed haul routes of excavation and material supply equipment

7. Handling and storage of materials on site.

B. The contractor shall submit a plan for pullback operations. Documents must be signed and stamped by a Professional Engineer. The pullback operations plan shall include the following:

1. The proposed methods and equipment data sheets used to complete the operation.

2. Calculations detailing the pulling force required to successfully complete the pulling operation.

3. Calculations verifying the reduction system will be uniform around the entire circumference to ensure no distortion occurs on the HDPE pipe during pull in.

4. Calculations verifying that the pull-in load will not exceed the maximum allowable pull-in load or tensile force per the HDPE manufacturer.

PART 2 – PRODUCTS

2.01 PIPE SPECIFICATIONS

A. High Density Polyethylene Pipe must conform to ASTM F714 and NSF 61.

B. HDPE resin shall be PE4710 characterized by ASTM 03035.

C. All pipe shall be made of virgin material, no rework except that obtained from manufacturers own production.

D. Cuts or gouges, per ASTM F585 are acceptable up to 10% of wall thickness. Beyond 10% of wall, damage must be removed by cutting the damaged section from the pipe string and butt fusing the ends.

2.02 OTHER PRODUCT SPECIFICATIONS

Pipe Connection Fittings shall meet AWWA C906 and meet or exceed the pressure requirements of the HDPE Pipe.

2.03 PRODUCT COMPLIANCE

A. Certificate of compliance shall be supplied to the City that the Product Pipe is per specification.

B. All materials used with the coupling or connecting HDPE pipe must be submitted and approved by the Engineer.

2.04 PRODUCT HANDLING

A. Pipe transport and handling shall be per manufacturer's recommendation.

B. Product other than pipe must be stored and handled per manufacturer's recommendations.

2.05 DESIGN PARAMETERS

The design of the HDPE pipe shall be based on hydrostatic design pressure of the segment to be lined and the contractor's pulling operations. The pipe shall be designed for a hydrostatic pressure of 125 psi with a factor of safety of 2. Factor of safety for pulling operations shall be a minimum of 2.

2.06 PERFORMANCE REQUIREMENTS

A. Chemical Resistance: The Polyethylene pipe shall meet the chemical resistance requirements for all pressurized potable water pipe systems.

B. Hydraulic Capacity: Overall, the hydraulic cross section shall be maintained as large as possible.

PART 3 – EXECUTION

3.01 DOCUMENTATION AND PLANNING

A. Contractor shall submit a plan to the City on a marked up copy of the Project Drawings showing the Contractor's construction phasing and plans at the Pre-

Construction Meeting. Plan details should include:

1. Pit locations for pipe insertion and receive locations.

2. Schedule of when various sections are to be rehabilitated.

3. Distances of each pull.

B. The Project Construction drawings provided by the Owner shall be marked by the contractor to show actual locations of services, fittings, and other reconnects. These markups shall be done the day of the actual placement. A set of marked up plans shall be returned to the Owner.

3.02 JOINING OF PIPE

A. Fusing: per Butt fusion methods in strict conformance to the pipe and/or fusing equipment manufacturer's recommendations shall be used to join sections of High Density Polyethylene Pipe.

B. Fusing of 'sticks' of pipe shall be performed in the general vicinity of the pipe insertion pit or lay down yard (staging area).

C. De-beading is required to remove the outside fusion roll back bead prior to compression fit HDPE pipe lining operations.

3.03 COMPRESSION FIT HDPE PIPE LINING OPERATION

The compression fit lining operation described within provides guidance on the basic process of compression fit HDPE pipe lining. The followings outline the requirements necessary to implement successful operations.

A. Maximum use should be made of all available records. Details of material types together with the position of existing valves, plugs, bends, tees, collars, service connections or any other internal obstructions in the pipeline should be obtained.

B. Details of all other buried utilities must be obtained. Sewer lines, water lines, gas lines, electricity cables and telecom ducts should be physically marked out on site, at the entry and exit excavation positions.

C. Wherever possible, excavations that are required for the removal of bends, tees or other internal obstructions should be utilized as launch/reception pits or access points for the CCTV survey and pipeline cleaning operations.

D. Internal inspection with the use of CCTV or man entry is required so that unknown internal obstructions can readily be identified and removed prior to the

proving pig.

E. All internal obstructions will require removal prior to the compression fit HDPE pipe lining process operation.

F. The pipeline should be thoroughly cleaned using scrapers, wire brushes etc. to ensure all scale and sediment has been removed before pipe insertion.

G. A proving pig (i.e. Bullet/plunger/gauging pig) slightly larger in diameter than the Outside Diameter of HDPE pipe (i.e. pipe diameter after exiting the reducing device) should be winched through the pipeline to ensure an unobstructed bore is available for pipe insertion.

H. A second PE pig may be used to determine the extent of any scoring which could be caused by protrusions within a host pipeline. If the depth of scoring exceeds 10% of the wall thickness, the pipe insertion operation must not be started and an investigation must be carried out to determine the cause of scoring which must then be removed.

3.04 PIT LOCATION AND EXCAVATION

A. Receive pit and insertion pit locations shall be placed such that excavations are minimized. This may be accomplished by placing either or both of these pits at the point of a service connection or fitting.

B. All pits shall be shored to ensure worker safety per OSHA or other regulations.

C. All pits shall be roped off and or covered when not active per OSHA or local regulations to ensure public safety.

D. Traffic control shall be accommodated for by Contractor as per the Contract specifications. Safe traffic passage around pit excavations that are located in or adjacent to streets or highways shall meet Permit requirements of governing Right-of-Way Department. Parking of related employee vehicles, trucks and auxiliary and equipment shall be such that congestion and traffic delays are minimized. Traffic control plan shall be in accordance to the traffic control plan details of the contract document.

3.05 ROD PAYOUT OPERATION

A. Rod payout is the process of assembling a string of rods and pushing them in a step wise manner from Receive Pit, through the interior of the host pipe to Insertion Pit. Alternatively, a winch with wire rope situated at the receiving pit shall be pulled through the interior of the host pipe to the insertion pit. The winch shall be capable of measuring pull force and cable payout length.

B. Host pipe in the Insertion Pit shall be cut or broken prior to arrival of the rod string or wire rope. Sufficient length shall be removed so as to allow the pull head to enter the host pipe and bend the product within the allowable radius specified by the pipe manufacturer. The second end of the host pipe in the Insertion Pit shall be positioned or worked so as not to damage the product pipe as it travels through the Insertion Pit.

C. Workmen shall not enter the Insertion Pit when the rod string or wire rope is nearing the Pit. A workman shall be in visual or radio contact with the machine operator so as to have the payout halted in a position that allows attachment of the pull head.

3.06 TOOLING AND ATTACHMENT

A. The Product Pipe shall be moved into position for attachment to the rod string. Appropriate traffic or pedestrian control will be exercised along the path of the Product Pipe.

3.07 BEGIN OF PULL

A. During the start of the pull, the pull speed must be reduced to allow the pull head to travel through the reduction device and into the host pipe.

B. After the first 10 feet of HDPE enters the host pipe, the speed may be increased.

3.08 REDUCTION

A. The pipe diameter of the HDPE will be temporarily reduced between 5% and 12% as the new pipe is pulled through the reduction device immediately before entering the host pipe.

B. The reduction system will be uniform around the entire circumference to ensure no distortion occurs on the HDPE during pull in.

3.09 PULL-IN LOAD

The actual pull-in load shall be continuously monitored during pull-in. It shall not be allowed to exceed the maximum allowable pull-in load or tensile force per the HDPE manufacturer.

3.10 CONSTANT TENSION

Constant tension must be applied on the HDPE pipe string until the pull head reaches

the receive pit. The equipment used during the compression fit operations must be of the constant tension type.

3.11 COMMENCEMENT OF PULL

A. After the pull head reaches the receive pit, the pulling force is removed. The contractor must use caution to pull the new HDPE a sufficient distance into the receive pit so the pipe does not retract back into the host pipe.

B. The HDPE pipe must then be allowed to relax to allow full reversion for a period of 24 to 48 hours before commissioning activities begin. The reversion period may lengthen or shorten depending on the characteristics of each pull, temperatures and other site specific conditions. The reversion process will be natural and no forced reversion will be allowed using either water, steam, heat or other methods.

3.12 ACCEPTANCE TESTING

A. HDPE resin shall be PE4710 as characterized by ASTM D 3035

B. If a Potable Water Line, disinfection of water line shall be carried out in accordance to AWWA C651 and S&WB standard Drawing 7260-W.

C. Hydrostatic pressure test shall be performed in accordance with ASTM F 2164, AWWA M55 and PPI Handbook Chapter 2 and S&WB standard Drawing 7260-W.

3.13 ACCEPTANCE

A. The compression fit HDPE pipe lining shall be deemed acceptable when the installation is completed according to specifications and the applicable tests are satisfied and;

B. When As-Built Drawings are submitted.

END OF SECTION

SECTION 330581 – METALLIC CASTINGS FOR UTILITY STRUCTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of the supply and installation of metallic castings for utility manholes, catch basins, vaults, boxes, etc.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required for water utility piping enclosure installation.

C. Section Includes:

1. Manufacturers
2. Materials
3. Manhole Casting Embedment Sealant
4. Installation

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012020 Measurement and Payment.

B. Measurement:

1. Each Measurement: Measurements will be made per actual quantity of items fully installed, and measured per each. There will be no allowance for partial or fractional installations or quantities.

C. Payment:

1. Manhole Frame: Payment for Manhole Frame will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

2. Manhole Cover: Payment for Manhole Cover will be made at the respective Contract unit bid price per each as indicated in the drawings, installed in accordance with these specifications and adjusted by the Construction Manager with acceptable field measurements.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

1. Manufacturer's Certifications verifying qualification of liner installer.

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM A 27: Standard Specification for Steel Castings, Carbon, for General Application.
2. ASTM A 48: Standard Specification for Gray Iron Castings.
3. ASTM A 148: Standard Specification for Steel Castings, High-Strength, for Structural Purposes.
4. ASTM B 22: Standard Specification for Bronze Castings for Bridges and Turntables.
5. ASTM B 584: Standard Specification for Copper Alloy Sand Castings for General Applications.
6. ASTM C 990: Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
7. ASTM D 1187: Standard Specification for Asphalt-Base Emulsion for Use as Protective Coatings for Metal.
8. ASTM E 10: Standard Test Method for Brinell Hardness of Metallic Materials.

B. Federal Specification SS-S-210A - Sealing Compound, Preformed Plastic, for Expansion Joints and Pipe Joints, Type 1

C. Department of Public Works, City of New Orleans (DPW)

1. General Specifications, current edition.

D. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition.

1.7 QUALITY ASSURANCE (NOT USED)

1.8 DELIVERY, STORAGE AND HANDLING

A. The materials shall be delivered to the job site in original unopened packaging and clearly labeled with the manufacturer's identification and printed instructions.

B. The Contractor shall handle and store all material in accordance with manufacturer instructions and shall dispose of all wastes in accordance with applicable regulations.

C. The Contractor shall keep products safe from damage. The Contractor shall promptly remove damaged products from the job site and replace damaged products with undamaged goods.

1.9 WARRANTY

A. The Contractor shall furnish an extended warranty for manhole rehabilitation for a period of one (1) year from the date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Valve Box Frame and Cover shall conform to East Jordan Iron works, Inc. V-8451 Valve Box Frame and Cover or approved equal.

2.2 MATERIALS

A. Manhole Frame and Covers: New manhole frame and covers shall be East Jordan Iron Works, (Vulcan) V-1501 or approved equal, as detailed in S&WB Standard Dwg. Nos.:

1. D-871 – Drain Manhole Frame and Cover
2. 3143-E-1 – Sewer and Water Frame and Cover

2.3 MANHOLE CASTING EMBEDMENT SEALANT

A. The sealant shall be a premium, extruded, bituminous, tacky rubber sealant in rope form for use on manholes as an embedment material for the frame to be adjusted to the brick/mortar corbel.

B. Sealant shall conform to the latest version of ASTM C 990 and Federal Specification SS-S-210A.

C. The sealant shall have the following properties:

Physical Properties	Required
Initial Elongation, % min.	300
Elongation, % min., at 2 weeks in total water immersion	300
Storage Life	Indefinite
Service Temperature Range, ^{0}F	-20 to 200

2.4 SOURCE QUALITY CONTROL

A. Complete records of inspections, examinations and tests shall be kept and submitted to the Engineer.

B. The Engineer reserves the right to perform any of the inspections set forth herein where deemed necessary to assure that material and services conform to the prescribed requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Field Location of Manholes

1. The Contractor shall be responsible for field locating all manholes in accordance with lines, grades, and inverts as shown on the drawings.

3.2 INSTALLATION

A. The top of the metal frame shall be flush with the natural ground in unpaved areas. In paved areas, the frame shall be set at a grade and slope that is consistent with the adjoining pavement, allowing for a smooth transition in all directions from pavement to frame and cover

1. The Contractor shall apply an approved sealant between the top adjustment ring and the manhole frame.

B. Where manholes or vaults are required within the public right-of-way, the Contractor shall be responsible for installation and construction of the manhole or vault in accordance with the S&WB General Specifications

3.3 ISOLATION PADS

A. All manholes within concrete paving areas shall be isolated (boxed out) by means of an approved square isolation pad in accordance with the DPW General Specifications for Street Paving and DPW Standard Drawing MC2 and Contract Documents.

END OF SECTION 330581

SECTION 333111 – PUBLIC SEWERAGE GRAVITY PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The work consists of providing PVC solid wall non-pressure pipe and appurtenances, complete and in place.

B. The Contractor shall provide all supervision, labor, materials, equipment, tools, fuel, power, water and incidentals required to provide complete public sewerage gravity piping.

C. Section Includes:

1. Laying Pipe
2. Field Jointing
3. Installation of Fittings
4. Sanitary Sewer Service Laterals
5. Sanitary Sewer Manhole Connections

1.3 PRICE AND PAYMENT PROCEDURES

A. There is no direct measurement or payment for, service connecting fittings (wyes or tees) or manhole connections. This work is considered incidental to public sanitary sewer gravity piping and the cost of this work shall be included in the unit item bid price for the associated work included within this section.

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS

A. Furnish Submittals in accordance with Section 011340 Shop Drawings, Product Data, and Samples.

B. Product Data:

1. The Contractor shall submit the product data for the piping, joints, fittings and appurtenances documenting the manufacturer's name, pipe dimensional sizing and minimum pipe stiffness.

C. Shop Drawings:

1. The Contractor shall submit Shop Drawings and laying diagrams of pipe, joints, bends, special fittings, and piping appurtenances.

D. Certifications:

1. The Contractor shall submit pipe manufacturer's certification of compliance with these Specifications.
2. The Contractor shall submit documentation that the pipe manufacturer has certified the workmen who will be jointing pipe.

E. Manufacturer's Instructions:

1. The Contractor shall submit the pipe manufacturer's printed recommendations for handling, storing, and installing pipe.

1.6 REFERENCE STANDARDS

A. American Society for Testing Materials (ASTM), Latest Edition

1. ASTM C 425: Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
2. ASTM D 1784: Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
3. ASTMD 1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3))
4. ASTM D 2321: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications and as indicated.
5. ASTM D 2444: Test Method for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).
6. ASTM D 3034: Standard Specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
7. ASTM D 3212: Standard Specifications for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
8. ASTM D 6938: Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
9. ASTM F 477: Standard Specifications for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
10. ASTM F 679: Standard Specification for Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
11. ASTM F 913: Thermoplastic Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

B. Sewerage and Water Board of New Orleans (S&WB)

1. General Specifications and Standard Drawings, current edition.
2. Sewer Overflow Abatement Plan, current edition.

1.7 PERFORMANCE REQUIREMENTS (NOT USED)

1.8 QUALITY ASSURANCE

A. Testing: Materials testing shall be based upon applicable ASTM Test Methods and AWWA Standards referenced herein. Costs of such inspection and tests shall be borne by the Contractor.

1.9 REGULATORY REQUIREMENTS

A. Occupational and Safety Health Administration (OSHA)

1. CFR 29, Part 1910.146: Permit Required Confined Spaces
2. CFR 29, part 1926, Subpart P: Excavations

1.10 FIELD CONDITIONS

A. Sanitary Sewer Rehabilitation shall not be performed if the Contractor does not have sufficient Sewer Flow Control to completely perform the work without spill as per Section 33 01 30.03.

1.11 DELIVERY, STORAGE AND HANDLING

A. The materials shall be delivered to the job site in original unopened packaging and clearly labeled with the manufacturer's identification and printed instructions.

B. The Contractor shall handle and store all material in accordance with manufacturer instructions and shall dispose of all wastes in accordance with applicable regulations.

C. The Contractor shall keep products safe from damage. The Contractor shall promptly remove damaged products from the job site and replace damaged products with undamaged goods.

D. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

E. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

F. Handling of the PVC pipe shall be done with implements, tools, and facilities as recommended by the pipe manufacturer to ensure that the pipe is not damaged in any manner during storage, transit, loading, unloading, and installation.

G. Pipe shall be inspected both prior to and after installation in the trench and all defective lengths shall be rejected and immediately removed from the working area.

1.12 WARRANTY

A. The Contractor shall furnish an extended warranty for sanitary sewer line repairs for a period of one (1) year from the date of Final Acceptance.

PART 2 - PRODUCTS

2.1 GENERAL

A. At points of tie-ins to the existing system, the pipe material should match the existing. If the new material does not match the existing material, the connection shall be made with the use of a coupling and bushing adapter intended for that purpose: ARC (Mission Rubber Co.), FERNCO, or equal, conforming to ASTM C 425.

2.2 MANUFACTURERS (NOT USED)

2.3 DESIGN CRITERIA (NOT USED)

2.4 ASSEMBLIES (NOT USED)

2.5 MATERIALS

A. All pipe shall have a SDR of 26 with minimum pipe stiffness of 115 psi when tested in accordance with ASTM D 2412.

B. The maximum allowable compression for installed PVC sewer pipe is 7.5% of its original vertical inside diameter. Pipe exceeding this allowable compression shall be removed and replaced with new pipe and reinstalled at the Contractor's expense.

C. Pipe, 6" – 15" Diameter:

1. All pipe shall be Solid Wall PVC pipe, joined by compression joints, unless otherwise indicated, and shall conform to the following requirements:

a. Polyvinyl chloride pipe (PVC) shall conform to the requirements of ASTM D 3034, SDR 26.

b. Material for PVC pipe shall conform to the requirements of ASTM D 1784 - Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds, for cell classification 12454-B or 12454-C as defined therein.

c. Joints shall conform to ASTM D 3212. Elastomeric seals for compression type joints shall conform to the requirements of ASTM F 477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe or ASTM F 913.

d. Pipe shall be continuously and permanently marked with the manufacturer's name and code, pipe size, PVC minimum cell classification, pipe stiffness designation, and the designation ASTM F 679.

i. The manufacturer's code shall include the year, month, day, shift, plant and extruder of manufacture.

ii. This coding shall be done in conjunction with records to be held by the manufacturer for 2 years, covering quality control tests, raw material batch number, and other information deemed necessary by the manufacturer.

D. Pipe, 18” – 36” Diameter:

1. All pipe shall be Solid Wall PVC pipe, joined by compression joints, unless otherwise indicated, and shall conform to the following requirements:

a. Polyvinyl chloride pipe (PVC) shall conform to the requirements of ASTM F 679. Material for PVC pipe shall conform to the requirements of ASTM D 1784 for Class 12364-C or 12454-C as defined therein. Maximum filler content shall be 10 percent.

b. Rubber gaskets for compression type joints for PVC pipe and fittings shall conform to the requirements of ASTM F 477

c. Pipe shall be continuously and permanently marked with the manufacturer's name and code, pipe size, PVC minimum cell classification, pipe stiffness designation, and the designation ASTM F 679.

i. The manufacturer's code shall include the year, month, day, shift, plant and extruder of manufacture.

ii. This coding shall be done in conjunction with records to be held by the manufacturer for 2 years, covering quality control tests, raw material batch number, and other information deemed necessary by the manufacturer.

E. Joints: integral bell and spigot-type with solid cross section elastomeric or rubber gasket ring conforming to ASTM D 3212. Gaskets shall meet the requirements of ASTM F 477. Use elastomeric factory installed gaskets to make joints flexible and watertight. Lubricant for rubber-gasketed joints shall be water soluble, non-toxic, non-supporting of bacteria growth, having no deteriorating effect on PVC or rubber gaskets. The manufacturer shall test a sample from each batch conforming to the requirements of ASTM D 2444.

F. Bedding Material:

1. All bedding material shall conform to the S&WB General Specifications and Standard Drawings, current edition and Sections 312323 Fill, Backfill and Compaction, 321123 Aggregate Base Course, and 330600 Schedules for Exterior Paving and Sodding.

2.6 ACCESSORIES

A. Refer to Section 330509 Piping Specialties for Sewer Utilities, for Flexible Repair Coupling, Flexible Tap Saddle Fittings, Manhole Adapters, and other piping specialties.

2.7 SOURCE QUALITY CONTROL

A. The supplier shall be responsible for the performance of all inspection and testing requirements specified in the latest versions of ASTM D 3034 or ASTM F 679, as applicable.

B. Complete records of inspections, examinations and tests shall be kept and submitted to the Engineer.

C. The Engineer reserves the right to perform any of the inspections set forth herein where deemed necessary to assure that material and services conform to the prescribed requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable and ready to receive work.

B. Examine and verify the sanitary sewer system is not surcharged prior to the start of work.

3.2 PREPARATION

A. The Contractor shall provide Sewer Flow Control, as specified in Section 330130.13 prior to the installation of Public Sewerage Gravity Piping for the duration of the installation.

B. The Contractor shall submit a Traffic Control Plan to the approving authority (DPW, DOTD, etc.) for review and approval prior to the closing of any streets. The approved traffic control plan shall be fully executed prior to the installation of Public Sanitary Sewer Pipelines.

C. The Contractor shall ensure sufficient barriers and other traffic control methods are in place around the excavation at all times and, at a minimum, the protective barriers shall meet the requirements of the City of New Orleans Department of Public Works requirements, except where the requirements of the Louisiana Department of Transportation are applicable and more stringent.

D. Any and all pavement saw cutting and removal shall be in accordance with Contract Documents.

E. Any and all trenching, excavation, bedding, backfill and compaction shall be in accordance with Section 312316 Excavation and Trenching and Section 312323 Fill, Backfill and Compaction and all applicable S&WB and New Orleans DPW Standard Drawings, current edition

1. Special care should be given in placing and consolidating the sand under the pipe haunches to provide adequate side support to the pipe while avoiding displacement and misalignment. The remainder of the trench shall be spread in loose lifts not to exceed twelve (12) inches and shall be compacted by mechanical vibrating equipment to at least 95 percent laboratory maximum density (dry) as determined by ASTM D 1557 at a moisture content within the limits of plus five (5) percent to minus three (3) percent of optimum. Density tests shall be one (1) per lift per one hundred (100) feet of trench. Field density in-place tests will be performed in accordance with ASTM D 6938.

F. The Contractor shall position his equipment and layout the site so as to not obstruct any fire hydrants or otherwise prevent its use in case of a fire in the area served by the hydrant.

G. The Contractor shall carry out operations in accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving the entering of confined spaces and excavation/trench safety.

H. Where it is necessary for the proper accomplishment of the work to repair, move, and/or replace any such utility or structure, do so in accordance with the provisions set forth herein.

1. The Contractor shall locate any all utilities on site that may require protect and/or relocation. The Contractor is solely responsible for verifying the location of and scheduling any relocation of all conflicting utilities.

2. Where service connections or lines from water or gas mains or sewers to the user's premises are disconnected, broken, damaged, or otherwise rendered inoperative by the Contractor for any reason, the Contractor shall, at Contractor's own expense, arrange with the respective utility company for any repairs of lines under their jurisdiction, or for any lines not within their jurisdiction; the Contractor shall repair or replace same and restore service to the premises.

3.3 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated unless deviations to layout are approved in writing by the Engineer.

B. The pipe shall be installed in accordance with the requirements of ASTM D 2321, manufacturer's installation instructions and this Section and the pipe sections shall be closely jointed to form a smooth flow line. Immediately before placing each section of pipe in final position for jointing, the bedding for the pipe shall be checked for firmness and uniformity of surface. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length.

C. Proper implements, tools, and facilities as recommended by the pipe manufacturer's standard printed installation instructions shall be provided and used by the Contractor for safe and efficient execution of the work. Pipe, fittings, valves, and accessories shall be carefully lowered into the trench by means of derrick, ropes, or other suitable equipment in such a manner as to prevent damage to pipe and fittings. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.

D. Bell holes shall be excavated so that after installation only the pipe barrel shall bear upon the trench bottom.

E. Cutting and machining of the pipe shall be accomplished in accordance with the pipe manufacturer's standard procedures for this operation. Pipe shall not be cut with a cold chisel, standard iron pipe cutter, or any other method that may fracture the pipe or will produce ragged, uneven edges.

F. The pipe and accessories shall be inspected for defects prior to lowering into the trench. Any defective, damaged or unsound pipe shall be repaired or replaced. Foreign matter or dirt shall be removed from the interior of the pipe before lowering into position in the trench.

G. Pipe shall be kept clean during and after laying. Openings in the pipeline shall be closed with watertight expandable type sewer plugs or PVC test plugs at the end of each day's operation or whenever the pipe openings are left unattended. The use of burlap, wood, or other similar temporary plugs will not be permitted.

H. Adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at its own expense.

I. Where the grade or alignment of the pipe is obstructed by existing utility structures such as conduits, ducts, pipes, branch connections to main sewers, or main drains, the obstruction shall be permanently supported, relocated, removed, or reconstructed by the Contractor in cooperation with owners of such utility structures. Unless otherwise indicated, this work shall be performed at the Contractor's expense.

J. The Contractor shall use a PVC pipe cutter where necessary to cut and machine all PVC pipe in the field. A "full insertion mark" shall be provided on each field cut pipe end. Field-cut pipe shall be beveled with a beveling tool made especially for plastic pipe.

K. If pipe or fittings become damaged during installation, it shall be repaired as recommended by the manufacturer or replaced as required by the Engineer at the Contractor's expense before proceeding further.

L. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional cost to the Owner. Repair couplings of any type will not be permitted for this repair.

M. Adequate backfill shall be deposited on pipe to prevent floating of pipe. Any pipe that has floated shall be removed from the trench, cleaned, and re-laid in an acceptable manner.

N. When pipe laying is not in progress or each time pipe laying is halted for more than one (1) hour, the ends of the pipe shall be sealed to prevent foreign material or trench water from entering the pipe.

O. No pipe shall be laid when, in the opinion of the Engineer, the trench conditions or weather are unsuitable for such work.

3.4 FIELD JOINTING

A. Workmen who are certified by the pipe manufacturer to join the pipe shall only perform pipe joining.

B. The jointing of the pipe shall be done in strict accordance with the pipe manufacturer instructions and shall be done entirely in the trench

C. Each pipe compression type joint shall be joined with a lock-in rubber ring and a ring groove that is designed to resist displacement during pipe insertion.

D. Machined ends and couplings shall be wiped clean immediately prior to jointing. The ring and the ring seat inside the bell shall be wiped clean before the gasket is inserted. At this time a thin film of lubricant shall be applied to the exposed surface of the ring and to the outside of the clean pipe end. Lubricant other than that furnished with the pipe shall not be used. The end of the pipe shall be then forced into the ring to complete the joint.

E. The pipe shall not be deflected either vertically or horizontally in excess of the printed recommendations of the manufacturer of the coupling.

F. After the joints have been completed, they shall be inspected before they are covered.

1. The pipe shall meet the test requirements for watertightness; immediately repair any leak or defect discovered at any time after the completion of the work.

2. Take up any pipe that has been disturbed after joints were formed, clean and remake the joints, and relay the pipe; this shall be done at the Contractor's expense.

3.5 INSTALLATION OF FITTINGS

A. Refer to Section 330509 Piping Specialties for Sewer Utilities and the manufacturer's installation recommendations for installation procedures.

3.6 SANITARY SEWER SERVICE LATERALS

A. Service connections shall be a minimum of 6-inches in diameter unless otherwise approved by the Engineer.

B. Sewer house service connections shall be extended from the main to the property line and shall be installed at a minimum slope of 2 percent or as approved by the Engineer.

C. Clean-outs shall be furnished, installed and capped in locations as directed by the Engineer.

3.7 SANITARY SEWER MANHOLE CONNECTIONS

A. Sanitary sewer manhole connections shall be installed in accordance with S&WB standard drawing number 6178-B-6, current edition.

B. The existing piping penetrating the manhole wall shall be fully removed and the penetration fully brushed clean of any loose debris.

C. A new short piece of PVC piping with bell fitting attached shall cut and prepared for installation; the pipe shall be fitted to the full thickness of the manhole wall.

D. A flexible manhole adapter, conforming to section 330509 Piping Specialties for Sewer Utilities, shall be fitted onto the PVC pipe and inserted into the manhole opening.

E. The annular space between the pipe and the wall of the structure shall be grouted with an elastomeric grout and jute or approved equal shall be used in place of the cement grout.

1. As an alternative, the Contractor may use a sand-impregnated PVC stub, grouted with a type three (III), high early strength mortar, for the manhole connection.

F. Reshape the bottom of the manholes as necessary to fit the invert of the pipe in the manner specified elsewhere.

G. There is no direct measurement or payment for the installation of sewer manhole connections.

3.8 MAINTENANCE (NOT USED)

3.9 FIELD QUALITY CONTROL

A. Lay no pipe except in the presence of an inspector representing the Engineer.

B. Each time the work on the sewer is halted for more than one (1) hour, the ends of the pipe shall be sealed with a temporary plug, approved by the Engineer, to prevent foreign material from entering the pipe.

C. Do not allow water to run or stand in the trench while pipe laying is in progress or before the trench has been backfilled.

D. Do not at any time open up more trench than available pumping facilities are able to dewater.

E. Testing and Inspection:

1. After complete installation of polyvinyl chloride gravity sewer pipe, including all connection sewer service laterals, the pipe shall be tested for acceptance in accordance with Section 330505 Sanitary Sewer Utilities Testing.

2. After complete installation of polyvinyl chloride gravity sewer pipe, including all connection sewer service laterals, the work shall be CCTV inspected in accordance with Section 330130.16 CCTV Inspection of Sanitary Sewer.

3. Segments not fully conforming to these Specifications must be immediately brought to the Engineer's attention.

4. The Contractor shall furnish a written proposed method of correction within 24 hours for approval by the Engineer.

3.10 PROTECTION

A. The Contractor shall carefully protect all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electric lines, or other utilities or structures in the vicinity of the work from damage at all times.

B. The Contractor shall take reasonable care during the initial excavation of the defective pipe so as not to disturb existing pipe that is still acceptable.

C. The Contractor shall carefully protect all new pipe in place from damage until backfill operations have been completed

3.11 CLEAN UP AND REMOVAL

A. The material from excavation to be wasted shall be loaded directly into trucks during excavation; do not stockpile on the street.

B. The Contractor shall dispose of portions of any piece of material removed during installation unless retained by the Engineer.

C. Upon completion of the Work, the Contractor shall fully clean and restore the site.

D. Sanitary Sewer Flow Control shall be removed and sanitary sewer flow shall be normalized in accordance with Section 330130.03.

END OF SECTION 333111

PROJECT I.D.	SHEET NO.
TM005	1 of 27

SEWERAGE & WATER BOARD OF NEW ORLEANS

TRANSMISSION MAIN REPLACEMENT

GRAPE ST./EDEN ST./S. DUPRE ST.

(COLLEGE CT.– S. NORMAN C. FRANCIS PKWY.) **(S. NORMAN C. FRANCIS PKWY.– S. DUPRE ST.)** **(EDEN ST.– MARTIN LUTHER KING BLVD.)**

PROJECT ID: TM005
PROJECT NO. PW 21031
CONTRACT NO.: 2156

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DPW STANDARD PLANS

	TITLE	REVISION DATE
201	DW1	02–03–2015
202	MC1	02–03–2015
203	MC2	02–03–2015
204	MC3	02–03–2015
205	PM1	02–03–2015
206	RW1	02–03–2015
207	RW2	02–03–2015
208	RW3	02–03–2015
209	RW4	02–03–2015

SWB STANDARD PLANS

	TITLE	REVISION DATE
301	7260–W	10–03–2019
302	7260–D	05–05–2005
303	7260–S	05–05–2005

TOTAL = 56

TYPE OF CONSTRUCTION:

CONSTRUCTION INCLUDES COMPRESSION FIT HDPE LINING EXISTING 43"ø WATER MAIN, OPEN CUT INSTALLATION OF 42"ø WATER MAIN, REPLACING EXISTING DRAINAGE, AND RECONSTRUCTING EXISTING ASPHALT AND CONCRETE ROADWAY.

NOTE:
DEPARTMENT OF PUBLIC WORKS GENERAL SPECIFICATIONS FOR STREET PAVING, LATEST EDITION, CITY OF NEW ORLEANS SHALL GOVERN ON THIS PROJECT EXCEPT AS AMENDED BY SPECIAL PROVISIONS AND/OR SUPPLEMENTAL SPECIFICATIONS.

PROJECT LENGTH:

GRAPE ST.:	1,235.00	L.F.
NORMAN C. FRANCIS AVE.:	55.47	L.F.
EDEN ST.:	1,684.56	L.F.
S. DUPRE ST.:	614.81	L.F.
TOTAL PROJECT LENGTH:	3,589.84	L.F.

GENERAL NOTES:

THE LOCATIONS OF UNDERGROUND AND OTHER NONVISIBLE UTILITIES SHOWN HEREON HAVE BEEN DETERMINED FROM DATA EITHER FURNISHED BY THE AGENCIES CONTROLLING SUCH DATA AND/OR EXTRACTED FROM RECORDS MADE AVAILABLE TO US BY THE AGENCIES CONTROLLING SUCH RECORDS. WHERE FOUND, THE SURFACE FEATURES OF LOCATIONS ARE SHOWN. THE ACTUAL NONVISIBLE LOCATIONS MAY VARY FROM THOSE SHOWN HEREON. EACH AGENCY SHOULD BE CONTACTED RELATIVE TO THE PRECISE LOCATION OF ITS UNDERGROUND INSTALLATION PRIOR TO ANY RELIANCE UPON THE ACCURACY OF SUCH LOCATIONS SHOWN HEREON, INCLUDING PRIOR TO EXCAVATION AND DIGGING.

VERTICAL DATUM BASIS:

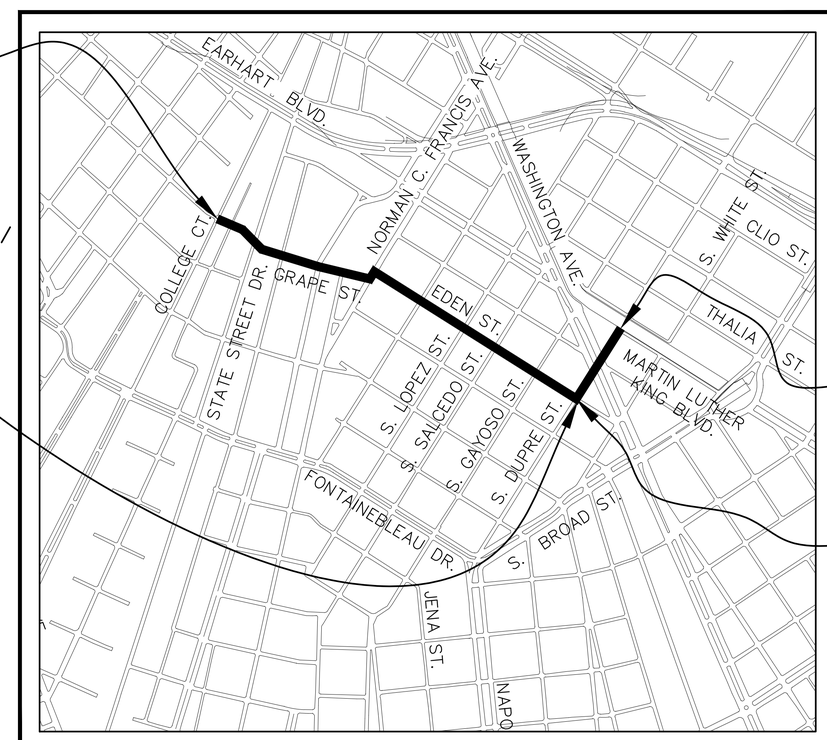
ELEVATIONS SHOWN ON THIS SURVEY ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING GEOID 12B. THEY ARE DERIVED FROM GPS OBSERVATIONS REFERENCED TO THE HEXAGON GEOSYSTEM SMARTNET REAL TIME NETWORK IN ACCORDANCE WITH LOUISIANA R.S. 50:173.1 COVERING VERTICAL CONTROL STANDARDS.

BEGIN SURVEY ℄
GRAPE ST./
NORMAN C. FRANCIS AVE./
EDEN ST.
STA. 100+00.00

END SURVEY ℄
GRAPE ST./
NORMAN C. FRANCIS AVE./
EDEN ST.
STA. 129+65.00

END SURVEY ℄
S. DUPRE ST.
STA. 136+00.00

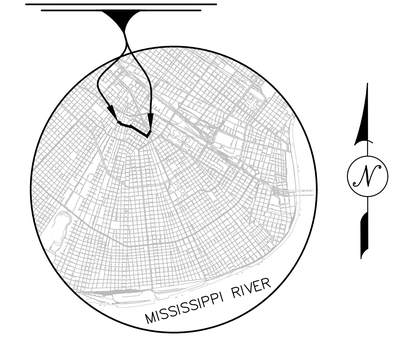
BEGIN SURVEY ℄
S. DUPRE ST.
STA. 129+65.00



LAYOUT MAP

–500 0 500 1000 2000 3000
SCALE: 1" APPROX. = 500 FT.

PROJECT LOCATION



VICINITY MAP
NTS

PLANS PREPARED BY AND RECOMMENDED FOR APPROVAL:

DATE: 10-8-2021
DIGITAL ENGINEERING & IMAGING, INC.

RECOMMENDED BY:

DATE:
GENERAL SUPERINTENDENT
SEWERAGE & WATER BOARD

DRAWING NO. 8962_W

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER
10-8-2021

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA. 70065 - PH. (504) 468-6129

SCHEDULE OF REVISIONS

NO	DATE	REVISION DESCRIPTION	BY
1	11–9–21	REVISED PER ADDENDUM 1	AKW

Louisiana One Call before you dig. 1-800-272-3020

DEII JOB: 660-0300.01
OCTOBER, 2021

DWG PATH: S:\(660)_NOSWB\660-0300.01 CC Broadmoor, Fountainbleau TM\20 Design\CAD\
DWG NAME: 660-0300.01_01_TitleSheet LAYOUT TAB: 1 PLOT DATE: Friday, November 05, 2021 @ 9:47am

PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM

1.0 ENGINEERING LAYOUT

1.1 ALL ELEVATIONS SHOWN ON THE PLANS ARE NAVD 1988, UNLESS NOTED OTHERWISE.

1.2 THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE PROJECT TEMPORARY BENCH MARKS SHOWN ON PLAN WITH THE PERMANENT BENCH MARK INDICATED ON THE INDEX SHEET.

1.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND VERIFYING ALL MEASUREMENTS, EXISTING ELEVATIONS, AND GRADES PRIOR TO BEGINNING OF CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE PROJECT CENTERLINE AND ADDITIONAL TEMPORARY BENCH MARKS FOR CONSTRUCTION PURPOSES BEFORE DESTROYING EXISTING MONUMENTS/NAILS/CROSS CUTS, ETC..

1.4 THE LINES AND GRADES SHOWN ON THE PLANS MAY BE VARIED SLIGHTLY BY THE ENGINEER IN THE FIELD IF CONDITIONS JUSTIFY SUCH A VARIATION. THE CONTRACTOR SHALL NOT BE ENTITLED TO AN EXTRA PAYMENT OTHER THAN WHATEVER INCREASE IN CONTRACT QUANTITIES IS INVOLVED.

1.5 THE CONTRACTOR SHALL BE RESPONSIBLE TO ESTABLISH GRADES FOR ALL ROADS TO MAINTAIN POSITIVE DRAINAGE TO THE NEAREST CATCH BASINS OR DROP INLETS WITHOUT PONDING WATER IN ROADWAYS. IF DRAINAGE CONFLICT IS OBSERVED, CONTRACTOR SHALL INITIATE A REQUEST FOR INFORMATION TO ENGINEER FOR REVIEW. CONTRACTOR SHALL EVALUATE CATCH BASIN ADJUSTMENT IN LIEU OF ROADWAY ELEVATION ADJUSTMENT, WHEN FEASIBLE.

1.6 THE CONTRACTOR SHALL CONTACT DEPT OF PUBLIC WORKS (STREET LIGHTING) TO MARK STREETLIGHT AND TRAFFIC SIGNAL UTILITY LINES AT LEAST 48 HOURS PRIOR TO SAW-CUTTING OR EXCAVATION. CONTRACTOR IS RESPONSIBLE FOR ANY COSTS IN MARKING AT NO DIRECT COST, THE FEE IS BASED ON PROJECT LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGED LINES IN 5-DAYS FOR STREET LIGHTS, AND IMMEDIATELY FOR TRAFFIC SIGNALS. IF THE CONTRACT HAS THE AREA MARKED AND DAMAGE OCCURS BECAUSE THE LINES WERE IMPROPERLY MARKED, THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR THE COST ASSOCIATED WITH THE REPAIR.

2.0 ROADWAYS

2.1 ALL ROADWAY CONSTRUCTION TO BE PERFORMED IN ACCORDANCE WITH THE CITY OF NEW ORLEANS GENERAL SPECIFICATIONS FOR STREET PAVING, CURRENT EDITION, AND THE CITY STANDARD DRAWINGS. PLEASE REFER TO https://www.nola.gov/dpw/construction-engineer-resources/

2.2 UNLESS SPECIFIED OTHERWISE, PROPERTY LINES INDICATED ON THE PLANS ARE APPARENT PROPERTY LINES.

2.3 ROADWAY RADII ARE MEASURED TO THE FACE OF CURB.

2.4 CONTRACTOR SHALL COMPACT AND SHAPE THE TOP 9 INCHES OF THE SUBGRADE PRIOR TO PLACING GEOTEXTILE FABRIC AND/OR GEOGRID. (NO DIRECT PAYMENT)

2.5 ASPHALT TRANSITIONS, RESHAPED DITCHES, AND CRUSHED STONE SHOULDERS FOR SIDE STREETS, IF REQUIRED, SHALL BE DONE PER DIRECTION OF THE FIELD ENGINEER AND PAID FOR AT THE CONTRACT UNIT PRICE.

2.6 WHENEVER NEW PAVING INTERSECTS OR MEETS EXISTING PAVING THAT IS TO REMAIN, THE GRADES OF THE NEW PAVING SURFACE SHALL MATCH THE GRADE OF THE EXISTING PAVING.

2.7 FOR CONCRETE BASE ROADWAY, THE CONTRACTOR SHALL NOT OVERLAY OVER EXPANSION JOINTS. AN APPROVED JOINT SEALER SHALL BE USED OVER EXPANSION JOINTS.

2.8 WHENEVER REMOVAL OF EXISTING PAVEMENT SURFACING IS REQUIRED IN CONJUNCTION WITH PROPOSED PROFILE GRADE LINE SHOWN ON THE DRAWINGS, THE EXISTING ASPHALT CONCRETE PAVEMENT IMMEDIATELY ADJACENT TO THE EDGE OF THE CONCRETE GUTTER SHALL BE MILLED TO A MINIMUM DEPTH OF ONE (1") TO OBTAIN A SMOOTH TIE-IN BETWEEN EXISTING AND PROPOSED CONSTRUCTION.

2.9 WHENEVER ADDITIONAL PAVEMENT SURFACING MATERIAL IS REQUIRED, THE ADJACENT CONCRETE GUTTER BOTTOM WILL NOT BE COVERED WITH ASPHALT SURFACING IF THE PROPOSED PROFILE GRADE LINE SHOWN ON THE DRAWINGS IS WITHIN ONE (1") INCH. IN AREAS WHERE THE PROPOSED PROFILE GRADE LINE IS HIGHER THAN THE EXISTING GUTTER BOTTOM BY MORE THAN ONE (1") INCH, THE SURFACE OF THE EXISTING GUTTER BOTTOM OR ROLLING STRIP SHALL BE OVERLAID WITH ASPHALT SURFACING TO THE FACE OF THE CURB.

2.10 THE CONTRACTOR SHALL REMOVE ALL CULVERT PIPES IN DITCHES, METAL GRATES, AND ANY OTHER OBSTRUCTIONS THAT ARE WITHIN THE LIMITS OF THE PROPOSED ROADWAY. (NO DIRECT PAYMENT)

2.11 ALL SALVAGEABLE ROADWAY MATERIALS, AS DETERMINED BY THE ENGINEER SHALL BE DELIVERED TO THE APPROPRIATE LOCATION AS SHOWN BELOW, AND DOCUMENTED IN ACCORDANCE TO CNO REQUIREMENTS. (NO DIRECT PAYMENT)

a) STONE CURB, COBBLESTONE, ETC. SHALL BE DELIVERED TO THE PUBLIC WORKS/MAINTENANCE YARD AT 838 SOUTH GENOIS STREET.

b) STREET SIGNS, TRAFFIC CONTROL DEVICES (SIGNS & SIGNALS) TO THE PUBLIC WORKS/SIGN SHOP AT 2832 LAFITTE STREET.

2.12 WHENEVER REMOVAL OF EXISTING PAVEMENT SURFACING, CURB OR SIDEWALK IS REQUIRED IN CONJUNCTION WITH WATER SERVICE REPLACEMENT SHOWN ON THE DRAWINGS THE CONTRACTOR SHALL VERIFY MEET WATER SERVICE LOCATION AND/OR FINAL WATER SERVICE ALIGNMENT PRIOR TO SAWCUTING. CURBS SHALL BE STAMPED WITH A "W," TO DESIGNATE WATER SERVICE LINES, AS DEPICTED IN DWG NO 7134A-W. CURBS SHALL BE STAMPED WITH A "S," TO DESIGNATE SEWER SERVICE CONNECTIONS, AS DEPICTED IN DWG NO 6312-E5-A.

2.13 CONTRACTOR SHALL COORDINATE WITH OWNER OF PRIVATE UTILITIES FOR ADJUSTMENT OF VALVES, BOXES, METERS, CLEANOUTS AND OTHER MISCELLANEOUS STRUCTURES LOCATED WITHIN OR CONFLICTING WITH AREAS TO BE RECONSTRUCTED AND ACCOMMODATING ADJUSTMENTS SHALL BE AT NO DIRECT PAYMENT. ADJUSTMENT OF PUBLIC UTILITIES VALVES, BOXES, METERS, CLEANOUTS, MANHOLES AND OTHER MISCELLANEOUS STRUCTURES SHALL BE MADE AT NO DIRECT PAYMENT UNLESS SPECIFIED FOR PAYMENT UNDER RESPECTIVE ITEMS ON THE UNIT PRICE FORM.

2.14 UPON REQUEST, DPW RESERVES THE RIGHT TO REQUEST FROM THE CONTRACTOR UP TO 50% OF THE RECYCLED ASPHALT PAVEMENT (RAP), CONTRACTOR SHALL DELIVER RAP TO A LOCATION SPECIFIED BY THE DIRECTOR WITHIN A 30 MILE RADIUS OF PROJECT SITE AT NO DIRECT PAY.

3.0 DRIVEWAYS, SIDEWALKS, & INCIDENTAL PAVEMENT

3.1 ALL LEGAL DRIVEWAYS REMOVED SHALL BE REPLACED IN KIND UNLESS OTHERWISE NOTED.

3.2 THE EXACT LIMITS OF REMOVAL AND REPLACEMENT OF DRIVEWAYS AND SIDEWALKS SHALL BE DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL NOT REMOVE ANY DRIVEWAY OR SIDEWALK WITHOUT PRIOR APPROVAL OF THE ENGINEER.

3.3 AT INTERSECTIONS WHERE THE SIDEWALK PAVEMENT IS TO REMAIN, HANDICAPPED RAMPS SHALL BE INSTALLED BY SAW CUTTING AND REMOVING ONLY THAT PORTION OF SIDEWALK REQUIRED TO ALLOW FOR CONSTRUCTION OF THE HANDICAPPED RAMPS.

3.4 THE CONTRACTOR IS REQUIRED TO SAW CUT (1" MINIMUM DEPTH) SIDEWALKS, DRIVEWAYS, CURBS, CONCRETE PAVEMENT, TO INSURE A STRAIGHT LINE BETWEEN OLD AND NEW WORK.

3.5 ALL SIDEWALKS AND DRIVEWAYS DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION, WHICH IN THE OPINION OF THE ENGINEER ARE OUTSIDE THE LIMITS OF THE ROADWAY CONSTRUCTION, SHALL BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE.

3.6 THE CONTRACTOR SHALL ADJUST THE ELEVATIONS OF THE NEW SIDEWALKS SO AS TO ALLOW DRAINAGE AWAY FROM THE PROPERTY AT ALL TIMES. SIDEWALK ELEVATIONS MAY BE ADJUSTED TO ALLOW DRAINAGE THROUGH DRIVEWAYS WITH DEPRESSED CURBS, UPON ENGINEER APPROVAL.

3.7 PAYMENT FOR EXCAVATION ASSOCIATED WITH CONSTRUCTION OF NEW SIDEWALKS, DRIVEWAYS, FOOTLAPS, AND HANDICAP RAMPS SHALL BE INCLUDED IN THE RESPECTIVE ITEM.

3.8 PAYMENT FOR GRADING OF FILL MATERIAL BETWEEN BACK OF CURB AND SIDEWALK SHALL BE INCLUDED IN THE RESPECTIVE ITEM.

3.9 CONTRACTOR SHALL OBSERVE ALLOWABLE TIME LIMITS OF OPEN ROADWAY PANELS AND SIDEWALKS, AND MAINTAIN PEDESTRIAN SAFETY, AS SPECIFIED IN GENERAL SPECIFICATIONS C724.04, C706.01, AND C706.02.

3.10 CRUSHED STONE OR CRUSHED CONCRETE USED FOR TEMPORARY SURFACING OF UTILITY TRENCHES, DRIVEWAYS, AND ROADWAYS BEFORE PAVING, INCLUDING THE COST OF MATERIALS, LABOR, AND EQUIPMENT SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE TRAFFIC MAINTENANCE AGGREGATE.

4.0 UTILITIES

4.1 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES BEFORE STARTING CONSTRUCTION. THE DEPARTMENT OF PUBLIC WORKS IS NOT RESPONSIBLE FOR ACCURACY OF THE LOCATION OF THESE UTILITIES SHOWN ON THE PLANS. THE CONTRACTOR IS CAUTIONED THAT MANY OF THE UNDERGROUND UTILITY PIPES, LINES, CONDUITS, CABLES, ETC., ARE LOCATED IMMEDIATELY BELOW THE EXISTING GRADE.

4.2 EXISTING POWER POLES SHALL BE RELOCATED BY OWNER AFTER THE CURB LINE HAS BEEN STAKED OUT IN THE FIELD FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE RESPECTIVE UTILITY COMPANIES FOR THE REMOVAL OR RELOCATION OF THE EXISTING UTILITIES WHICH INTERFERE WITH THE WORK.

4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES WHICH OCCURS DURING CONSTRUCTION AND SHALL IMMEDIATELY REPORT ANY DAMAGE TO THE UTILITY ENTITIES. ALL REPAIRS OF THE DAMAGED UTILITIES SHALL BE DONE BY THE RESPECTIVE UTILITY ENTITY, EXCEPT S&WB POWER FEEDER, WHICH SHALL BE REPAIRED BY THE CONTRACTOR. ALL REPAIR COSTS SHALL BE BORNE BY THE CONTRACTOR.

4.4 ALL PRIVATELY OWNED UTILITY MANHOLES AND OTHER STRUCTURES WILL BE ADJUSTED BY THE UTILITY COMPANIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE UTILITY COMPANIES AND REQUEST THE NECESSARY ADJUSTMENTS. THE ABOVE REQUEST SHALL BE MADE AT LEAST 2 WEEKS PRIOR TO CONSTRUCTION IN AREA OF CONFLICT TO ALLOW THE REQUIRED UTILITY COMPANY SUFFICIENT TIME FOR PERFORMING THE WORK.

5.0 SEWERAGE & WATER BOARD ITEMS

5.1 ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE CURRENT GENERAL SPECIFICATIONS; DRAWING NUMBERS 7260-S, 7260-W & 7260-D; AND THE STANDARD DRAWINGS OF THE S&WB OF NEW ORLEANS, LOUISIANA EXCEPT WHERE OTHERWISE NOTED IN THE CONSTRUCTION DOCUMENTS.

5.2 THE LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE SAME AND SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT THEM.

5.3 THE CONTRACTOR SHALL VERIFY ELEVATION OF EXISTING INVERTS THAT ARE A PART OF THIS JOB. PRIOR TO INSTALLING NEW UTILITY, CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.

5.4 ALL CHANGES FROM THESE DRAWINGS MUST BE APPROVED BY THE S&WB PRIOR TO BEGINNING THE CONSTRUCTION WITH WHICH THEY ARE CONCERNED.

5.5 THE CONTRACTOR SHALL NOTIFY THE CHIEF OF ENGINEERING OF THE S&WB IN WRITING NOT LESS THAN THREE (3) OR MORE THAN TEN (10) WORKING DAYS IN ADVANCE OF STARTING THE CONSTRUCTION.

5.6 FINAL ACCEPTANCE OF THE SYSTEM WILL BE SUBJECT TO A ONE (1) YEAR MAINTENANCE PERIOD FOLLOWING ACCEPTANCE OF THE PROJECT BY THE S&WB. BEFORE FINAL INSPECTION OF THE WORK, THE CONTRACTOR SHALL SUBMIT AN "AS-BUILT" DRAWING TO THE S&WB SHOWING CHANGES IN LINE OR GRADE FROM THE ORIGINAL DRAWINGS, AND THE LOCATION AND DEPTH OF ALL HOUSE CONNECTIONS AS PER S&WB REQUIREMENTS.

5.7 IN CASE OF CONFLICT BETWEEN THE NEW DRAIN LINES AND THE SEWER HOUSE CONNECTIONS, THE CONTRACTOR SHALL ADJUST THE SEWER HOUSE CONNECTIONS TO AVOID THE CONFLICTS. ALL APPLICABLE S&WB SPECIFICATIONS AND GUIDELINES SHALL BE FOLLOWED BY THE CONTRACTOR DURING THESE ADJUSTMENTS.

5.8 ALL NEW MANHOLES, CATCH BASINS, AND DROP INLETS, SHALL BE PLACED ON A 6" LAYER OF CRUSHED STONE OR APPROVED EQUAL (NO DIRECT PAYMENT)

5.9 THE INSTALLATION OF THE WATER MAINS CLOSER TO A SEWER HAS BEEN DESIGNED TO BE LAID IN A SEPARATE TRENCH LOCATED ON ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE GRAVITY SEWER.

6.0 WATER MAINS

6.1 ALL NEW WATER MAIN PIPES SHALL HAVE MINIMUM COVER BETWEEN NEW GUTTER LINE AND TOP OF PIPE AS FOLLOWS, UNLESS OTHERWISE NOTED.
a) FOR 6", 8", AND 10" PIPES, MIN. COVER IS 3'-6".
b) FOR 12" TO 24" PIPES, MIN. COVER IS 4'-0".

6.2 ALL EXISTING VALVES NOT ENCLOSED IN MANHOLES SHALL HAVE NEW MANHOLES CONSTRUCTED AROUND VALVES.

6.3 ALL EXISTING VALVES AND FIRE HYDRANTS THAT ARE NOTED TO BE REMOVED OR ARE REPLACED SHALL HAVE VALVES, MANHOLE CASTINGS, AND COVERS, REMOVED AND RETURNED TO THE S&WB CENTRAL YARD (2900 PEOPLES AVE.)

6.4 WATER METER INSPECTION: IT IS THE CONTRACTOR'S RESPONSIBILITY TO SCHEDULE THE METER BOX INSPECTION WITH THE S&WB AND DEPARTMENT OF PUBLIC WORKS PRIOR TO THE START OF CONSTRUCTION TO DETERMINE WHICH METER BOXES REQUIRE REPAIR, REPLACEMENT, CLEANING OR ADJUSTMENT TO GRADE. IF NO PRE-CONSTRUCTION INSPECTION IS PERFORMED, IT WILL BE ASSUMED THAT ALL METER BOXES WERE IN GOOD CONDITION, AND ANY REQUIRED REPAIRS WILL BE AT THE CONTRACTOR'S EXPENSE.

6.5 PRIOR TO FINAL ACCEPTANCE, ALL METER BOXES LOCATED WITHIN THE PROJECT LIMITS OF THIS PROJECT SHALL BE IN GOOD REPAIR, AT PROPER GRADE, PROPERLY ALIGNED AND CLEANED OF MUD AND DEBRIS. THERE WILL BE NO ADDITIONAL PAYMENT FOR REMOVAL OF MUD AND DEBRIS WITHIN A METER BOX THAT REQUIRES REPAIR, ADJUSTMENT, OR REPLACEMENT.

6.6 ABANDONED WATER MAINS SHALL BE PLUGGED AND ABANDONED MANHOLES AND CATCH BASINS SHALL BE FILLED WITH APPROVED BACKFILL MATERIAL.

6.7 THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEFLECTING OR OFFSETTING REQUIRED NEW WATER MAIN TO AVOID ANY CONFLICTS WITH OTHER UTILITIES AS DIRECTED BY THE ENGINEER.

6.8 THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING REQUIRED TIES INTO EXISTING WATER MAINS.

6.9 THE INSTALLATION OF THE WATER MAINS CLOSER TO A SEWER HAS BEEN DESIGNED TO BE LAID IN A SEPARATE TRENCH LOCATED ON ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE GRAVITY SEWER.

7.0 SEWER & DRAIN LINES

7.1 THE COST FOR DRAINAGE EXCAVATION, BEDDING MATERIAL, SHEETING, BRACING, BACK FILLING, GRADING,

7.2A ALL EXISTING HOUSE CONNECTIONS ARE TO BE RECONNECTED TO NEW DRAIN LINES WITH 6" PVC DRAIN LINE. THE HOUSE CONNECTIONS WILL BE ATTACHED TO NEW RCP BY DRILLING THE RCP (NO TAPPING WILL BE ALLOWED) AND USING A RUBBER BOOT OR SAND-IMPREGNATED PVC BELL TO CONNECT TO THE NEW PVC PIPE. AN ALTERNATE METHOD COULD UTILIZE AN RCP TEE IN THE MAIN LINE WITH A RUBBER BOOT (I.E. KOR-N-SEAL BOOT, OR APPROVED EQUAL) TO CONNECT THE 6" PVC TO THE LATERAL STUB OF THE TEE.

7.2B IN LIEU OF THE ABOVE, AN ALTERNATIVE METHOD MAY BE UTILIZED BY TYING THE 6" DRAIN HOSE CONNECTIONS INTO AN 8" COLLECTOR LINE LOCATED BEHIND THE CURB AND TIED INTO THE CATCH BASINS. TO BE INSTALLED AS DIRECTED BY THE D.P.W. REPRESENTATIVE.

7.3 NO 90 DEGREE BENDS WILL BE ALLOWED IN DRAIN HOUSE CONNECTION PIPES.

7.4 ON DRAIN POINT REPAIRS, NO BRICK OR CONCRETE COLLARS WILL BE ALLOWED.

7.5 FOR ALL SEWER AND DRAIN REPAIRS, THE CONNECTION OF ANY TWO DISSIMILAR MATERIALS SHALL BE ACCOMPLISHED BY INSTALLATION OF A "NO-HUB" COUPLING CONSISTING OF A NEOPRENE SLEEVE AND BUSHING ADAPTER, TWO STAINLESS STEEL BANDS, AND STAINLESS STEEL SCREWS. THE COUPLING SHALL BE MANUFACTURED IN STRICT ACCORDANCE WITH THE CAST IRON SOIL PIPE INSTITUTE SPECIFICATIONS C301, LATEST REVISION, AS MANUFACTURED BY TYLER CLAY PRODUCTS CORP., FERNCO, OR APPROVED EQUAL.

7.6 DRAIN LINES INDICATED FOR REMOVAL WILL BE REMOVED AND DISPOSED IN A PROPER MANNER. THE CONTRACTOR SHALL BACKFILL THE RESULTING VOID WITH APPROVED COMPACTED BACKFILL MATERIAL AT NO DIRECT PAY.

7.7 MANHOLES AND CATCH BASINS INDICATED TO BE ABANDONED IN PLACE, SHALL BE REMOVED TO THREE (3) FEET BELOW GRADE AND THEN PLUGGED AND FILLED WITH SAND.

7.8 THERE WILL BE NO DIRECT PAYMENT FOR TIE-IN NEW OR EXISTING LINES TO ANY MANHOLES.

8.0 HORTICULTURE REQUIREMENTS

8.1 THE CONTRACTOR SHALL COMPLY WITH ALL "HORTICULTURE REQUIREMENTS" SPECIFIED BY THE DEPARTMENT OF PARKS & PARKWAYS. HORTICULTURE CONSTRUCTION CONFLICTS OBSERVED DURING CONSTRUCTION LAYOUT SHALL BE PROVIDED TO ENGINEER OF RECORD TO ASSESS PROJECT IMPACT. CONTRACTOR SHALL SUBMIT A REQUEST FOR INFORMATION, WITH JUSTIFICATION FOR PROPOSED CHANGE.

8.2 THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PARKWAYS & PARKS PRIOR TO REPLACING ANY UTILITY LINES LOCATED NEAR TREES. IF NECESSARY THE CONTRACTOR SHALL SHORE THE AREA NEAR TREES, USE ROOT GUARDS, AND OTHER PRECAUTIONS NECESSARY TO PROTECT THE TREES.

8.3 ALL TREE REMOVALS, BRANCH PRUNING, OR ROOT CUTTING, SHALL BE PERFORMED BY A LICENSED ARBORIST, APPROVED BY THE DEPARTMENT OF PARKWAYS & PARKS.

8.4 ALL TREE GRATES, ETC., SHALL BE DELIVERED TO THE DEPARTMENT OF PARKWAYS & PARKS NURSERY AT 2829 GENTILLY BLVD. (NO DIRECT PAYMENT).

8.5 ALL EXISTING TREES, SHRUBS, AND VEGETATION DISTURBED BY THE CONTRACTOR'S OPERATION, SHALL BE REPLACED IN-KIND OR REPAIRED AT NO DIRECT PAY.

8.6 ALL HOUSE CONNECTIONS WHICH ARE LOCATED WITHIN THE TREE DRIP LINES SHALL BE EXCAVATED BY HAND AT NO DIRECT PAY, NO MECHANICAL TRENCHING WILL BE ALLOWED.

8.7 THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS PRIOR TO TRIMMING ANY TREES LOCATED ON PRIVATE PROPERTY.

8.8 ALL HOUSE CONNECTIONS AND CURBS WHICH ARE LOCATED WITHIN THE TREE DRIP LINES SHALL BE AIR SPADED AT NO DIRECT PAY, NO MECHANICAL TRENCHING WILL BE ALLOWED. ARBORIST MUST BE PRESENT DURING EXCAVATION.

8.9 THE CONTRACTOR SHALL BE REQUIRED TO RESTORE ALL GREEN SPACES THAT ARE DISTURBED BY CONSTRUCTION TO ITS PRE-EXISTING CONDITIONS. (NO DIRECT PAYMENT) SEEDING AND SODDING SHALL COMPLY WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS SECTION C717 AND SECTION C714 RESPECTIVELY.

9.0 TRAFFIC CONTROL

9.1 PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE CITY TRAFFIC ENGINEER FOR REVIEW AND APPROVAL A COMPLETE CONSTRUCTION SIGNAGE, TRAFFIC MAINTENANCE, AND PUBLIC SAFETY PLAN, PER SECTION C129 OF THE GENERAL SPECIFICATIONS, WHICH, AT A MINIMUM, INCLUDE THE FOLLOWING:

1. A SIGN INVENTORY - A LIST OF ALL EXISTING TRAFFIC CONTROL DEVICES (SIGNS, SIGNALS, RAISED MARKERS, PAVEMENT MARKINGS, ETC.) ACCURATELY LOCATED ON THE PLANS (NO DIRECT PAY).
2. A PLAN FOR THE PROPOSED ROUTE ON WHICH CONSTRUCTION MATERIALS AND EQUIPMENT ARE TO BE TRANSPORTED TO OR FROM THE CONSTRUCTION SITE.
3. A DETOUR PLAN SHOWING PROPOSED ROUTES FOR LOCAL AND TRANSIENT TRAFFIC ON WHICH LOCATIONS OF DETOUR TRAFFIC CONTROL DEVICES AND CONSTRUCTION ZONE OR WORK ZONE TRAFFIC CONTROL DEVICES ARE SHOWN. TRAFFIC CONTROL DEVICE APPLICATIONS AND METHODS SHALL BE IN COMPLIANCE WITH PART 6 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. THE NAME AND TELEPHONE NUMBER OF THE RESPONSIBLE PERSON IN CHARGE OF THE PROJECT.
5. TRAFFIC CONTROL PLAN SHALL BE PROVIDED TO IDENTIFY ALL INTERSECTION AND ROADWAY DETOURS AND CLOSURES. ALL DETOURS AND CLOSURES MUST BE REVIEWED AND APPROVED BY THE DIRECTOR OR CHIEF TRAFFIC ENGINEER.
6. TRAFFIC CONTROL PLANS MUST BE PROVIDED TO DEPARTMENT OF PARKS AND PARKWAYS, WHEN TREE CANOPIES ARE TO BE DISTURBED. CONTRACTOR SHALL OBTAIN PERMIT FROM PARKS AND PARKWAYS AT LEAST 7 BUSINESS DAYS PRIOR TO TREE TRIMMING, TO BE PERFORMED BY A LOUISIANA LICENSED ARBORIST.

9.2 THE CONTRACTOR SHALL SEEK APPROVAL OF THE CITY TRAFFIC ENGINEER FOR ANY TRAFFIC RELATED PLAN CHANGE, INCLUDING REMOVAL, RELOCATION OR ADDITION OF TRAFFIC CONTROL DEVICES BEFORE OR DURING THE COURSE OF CONSTRUCTION.

9.3 ALL EXISTING TRAFFIC CONTROL DEVICES THAT ARE IN CONFLICT WITH THE CONSTRUCTION OR WORK ZONE TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED BY THE CONTRACTOR, AND THE REMOVED DEVICES RETURNED TO THE CITY SIGNAL SHOP OR SIGN SHOP AT 2832 LAFITTE STREET. ALL EXISTING DEVICES LEFT IN THE CONSTRUCTION OR WORK ZONE SHALL BE MAINTAINED IN GOOD CONDITION BY THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION.

9.4 ALL REMOVED TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO THEIR ORIGINAL POSITION AND ORIENTATION BY THE CONTRACTOR PRIOR TO THE TIME OF FINAL INSPECTION.

9.5 ALL TRAFFIC CONTROL DEVICES AND ASSOCIATED HARDWARE (SIGNS, SIGNALS, CONDUITS, CABLES, MARKINGS, ETC.) REMOVED OR DAMAGED DURING THE EXECUTION OF THIS CONTRACT, OTHER THAN AS PROVIDED FOR IN THIS CONTRACT SHALL BE REPLACED AT NO COST TO THE CITY.

9.6 ANY DAMAGE CAUSED BY THE CONTRACTOR'S WORK SHALL BE IMMEDIATELY REPORTED BY THE CONTRACTOR TO THE CITY TRAFFIC ENGINEER. REPAIRS SHALL BE PERFORMED BY THE CONTRACTOR OR BY CITY FORCES, AT THE DISCRETION OF THE CITY TRAFFIC ENGINEER, WITH ALL ASSOCIATED COSTS BEING PAID BY THE CONTRACTOR.

9.7 THE CONTRACTOR SHALL CONTACT THE CITY'S TRAFFIC SIGNAL SHOP THROUGH THE TRAFFIC ENGINEERING DIVISION (504-658-8040) PRIOR TO THE START OF THE JOB FOR TRAFFIC SIGNAL UTILITY MARKINGS AND COORDINATION.

10.0 GENERAL

10.1 CONTRACTOR IS TO NOTIFY RESIDENTS OF CONSTRUCTION A MINIMUM OF ONE WEEK PRIOR TO START OF CONSTRUCTION.

10.2 CONTRACTOR SHALL TAKE REASONABLE MEASURES TO AVOID UNNECESSARY NOISE APPROPRIATE FOR THE AMBIENT SOUND LEVELS IN THE AREA DURING WORKING HOURS. ALL CONSTRUCTION MACHINERY AND VEHICLES SHALL BE EQUIPPED WITH PRACTICAL SOUND MUFFLING DEVICES, AND OPERATED IN A MANNER TO CAUSE THE LEAST NOISE, CONSISTENT WITH EFFICIENT PERFORMANCE OF THE WORK.

10.3 CONTRACTOR SHALL TAKE REASONABLE MEASURES TO AVOID UNNECESSARY DUST. SURFACES SUBJECT TO CREATING DUST SHALL BE KEPT MOIST WITH WATER OR BY APPLICATION OF CHEMICAL DUST SUPPRESSANT. DUSTY MATERIAL IN PILES OR IN TRANSIT SHALL BE COVERED TO PREVENT BLOWING.

10.4 CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST THREE (3) WORKING DAYS PRIOR TO BEGINNING OF CONSTRUCTION AROUND THEIR RESPECTIVE UTILITIES:

a)	S&WB:	INSPECTION:	MR. HADI AMINI	(504) 865-0445
		ELECTRICAL ENGINEERS:	MR. JAMES VINCENT	(504) 865-0450
b)	DEPARTMENT OF PUBLIC WORKS:	MAINTENANCE:	MR. JEROME CASBY	(504) 658-8150
		TRAFFIC:	MR. ALLEN YRLE	(504) 658-8050
		ENGINEERING:	MR. NGUYEN PHAN	(504) 658-8030
		STREET LIGHTING:	MR. JORDAN HELVESTON	(504) 658-8067
		ELECTRICAL:	MR. KEN SPANN	(504) 593-3419
c)	ENTERGY:	GAS:	MR. WILLIAM ARMSTRONG	(504) 595-3877
d)	AT&T:		MR. KELLY WATIGNEY	(504) 952-6417
e)	COX CABLE:		MR. DENNIS LACOMBE	(504) 358-6079
f)	DEPARTMENT OF PARKS & PARKWAYS:	CHIEF LANDSCAPE ARCHITECT:	MS. TICA HARTMAN	(504) 658-3226
		CHIEF URBAN FORESTER:	MR. BOB RICHARDS	(504) 658-3200
g)	LOUISIANA ONE CALL:			1-800-272-3020
h)	HISTORIC PRESERVATION SPECIALIST		MR. PHILIP GILMORE	(504) 658-8698
j)	ARCHEOLOGIST		MR. MICHAEL GODZINSKI	(504) 658-8632
k)	CHIEF URBAN FORESTER		MR. DOUGLAS ROBICHEAUX	(504) 658-3224
l)	CHIEF LANDSCAPE ARCHITECT		MR. DANIEL McELMURRAY	(504) 658-3225

10.5 CONTRACTOR SHALL DEVELOP AND SUBMIT SITE-SPECIFIC SAFETY AND HEALTH PLAN, TO INCLUDE SAFE WORK PRACTICES FOR REVIEW.

LEGEND

- EXISTING (FINE LINE)
- NEW CONSTRUCTION (BROAD LINE)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED ASPHALT ROADWAY CNO DPW (ANSI 131)
- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED ASPHALT/CONCRETE COMPOSITE ROADWAY CNO DPW (ANSI 131/HEX)
- REQUIRED ASPHALT/CONCRETE COMPOSITE ROADWAY SWBNO (ANSI 131/TRIANG)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE CNO DPW (ANSI 133)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- REQUIRED REMOVAL AND PLACEMENT OF ASPHALT OR CONCRETE ROADWAY FOR SWBNO ESSA
- REMOVE/CONSTRUCT BARRIER CURB
- REMOVE/CONSTRUCT MOUNTABLE CURB
- REMOVE/CONSTRUCT TIMBER CURB
- BRIDGE
- RAILROAD
- LEVEE
- FENCE LINE
- TREE
- HEDGE
- BUILDING
- CULVERT
- BASE LINE
- EXISTING RIGHT OF WAY
- CENTER LINE

LEGEND (CONT.)

UNDERGROUND PIPING MUST BE SHOWN AS A SINGLE LINE WHEN PIPE SIZES ARE LESS THAN 36" FOR DRAINS & 12" FOR SEWER, WATER & GAS. DOUBLE LINES WHEN SIZES ARE/ OR EXCEEDS 36" FOR DRAINS, 12" FOR SEWER, WATER & GAS

- D12" EXISTING DRAIN LINE — D36" 36"ø & UP
- D12" PROPOSED DRAINLINE — D36" 36"ø & UP
- S8" EXISTING SEWER — S12" 12"ø & UP
- S8" PROPOSED SEWER — S12" 12"ø & UP
- W8" EXISTING WATER — W12" 12"ø & UP
- W8" PROPOSED WATER — W12" 12"ø & UP
- G2" EXIST GAS — G12" 12"ø & UP
- G8" EXIST GAS — G12" 12"ø & UP
- UGT — UNDERGROUND TELEPHONE CABLE
- UGE — UNDERGROUND ELECTRIC LINE (SPECIFY S&WB OR OTHER)
- TV — UNDERGROUND TELEVISION CABLE
- PROPOSED VERTICAL CATCH BASIN (VCB)
- PROPOSED MOUNTABLE CATCH BASIN (MCB)
- PROPOSED MANHOLE (MH)
- EXISTING CATCH BASIN (EXISTCB)
- or / or DROP INLET EXISTING/PROPOSED (DI)
- WATER VALVE/MANHOLE (CIRCULAR)(WVMC)
- WATER VALVE/MANHOLE (RECTANGULAR)(WVMR)
- D DRAIN MANHOLE (DRAINMH)
- S SEWER MANHOLE (SEWERMH)
- W WATER MANHOLE (WATERMH)
- G GAS MANHOLE (GASMH)
- TR TRAFFIC MANHOLE (TRMH)
- T TELEPHONE MANHOLE (TELMH)
- U TELEGRAPH MANHOLE (TGMH)
- E ELECTRIC MANHOLE (ELECMH)
- R TRASH RECEPTACLE (SUB-SURFACE) (TRASH)
- UTILITY VALVE (UV)
- WATER METER (WM)
- RESIDENTIAL MAIL BOX (RMB)
- TELEPHONE INTERFACE BOX (TIB)
- CLEAN OUT FOR SEWER (COS)
- CLEANOUT FOR DRAIN (COD)
- TV CABLE TV BOX (TVB)
- TSB TRAFFIC SIGNAL BOX (TSB)
- TCB TRAFFIC CONTROL BOX (TCB)
- UTILITY POLE (UP)
- GUY POLE (GP)
- GUY WIRE & ANCHOR (GWA)
- P PARKING METER (PARKM)
- EXISTING CURB (SPECIFY TYPE)
- LIGHT STANDARD (LS)
- TRAFFIC SIGNAL STANDARD (TSS)
- EXISTING FIRE HYDRANT (EFH)
- PROPOSED FIRE HYDRANT (PFH)
- TRAFFIC SIGN (TS)
- IRON PIPE OR IRON ROD (IP)
- CROSS CUT IN CONCRETE (CROSS)
- X —D24"— X REMOVE EXIST. DRAIN LINE
- REMOVE EXIST. MANHOLE (SEWER, DRAIN OR WATER)
- ADJ. ADJUSTMENT
- T.T. TREE TRIMMING
- R.P. ROOT PRUNING
- WATER METER/MANHOLE

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
IN ENGINEERING
10-8-2021

SHEET NUMBER
2 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA. 70065 - PH. (504) 468-6129

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	2

CITY OF NEW ORLEANS LOUISIANA

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GENERAL NOTES & LEGEND

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660_) NDS\660-0300.01 CC Broadmoor, Fontainebleau TM\20 Design\CAD\ DATE OF PLOT: Friday, November 05, 2021 @ 9:47am
DWG NAME: 660-0300.01_02_NOTES and LEGEND LAYOUT TAB: 2

SUMMARY OF ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
C202(52)(C)	REMOVAL AND DISPOSAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT	SY	1895
C202(52)(D)	REMOVAL AND DISPOSAL OF EXISTING SIDEWALK, DRIVEWAY, FOOT LAP (CONCRETE, BRICK, ASPHALT, ETC.)	SY	1567
C202(52)(F)	REMOVAL AND DISPOSAL OF EXISTING CURB AND GUTTER BOTTOM	LF	2079
C202(52)(I)	REMOVAL AND DISPOSAL OF EXISTING ASPHALTIC CONCRETE PAVEMENT	SY	3722
C203(51)	ROADWAY EXCAVATION	CY	1191
C203(58)	UNSUITABLE SUBGRADE EXCAVATION AND SAND FILLING	CY	138
C203(59)	GEOTEXTILE FABRIC FOR STABILIZATION	SY	5638
C203(60)	GEOGRID	SY	5617
C302(51)	BASE COURSE	CY	1261
C402(51)	TRAFFIC MAINTENANCE AGGREGATE	CY	400
C502(53)(A)	2.5" THICK SUPERPAVE ASPHALTIC CONCRETE WEARING COURSE	SY	8609
C502(53)(B)	4.5" THICK SUPERPAVE ASPHALTIC CONCRETE BINDER COURSE	SY	3722
C509(51)	COLD PLANING ASPHALTIC PAVEMENT (2.5" AVERAGE THICK)	SY	5299
C601(54)	REINFORCED CONCRETE PAVEMENT (8" THICK)	SY	1895
C701(53)(F)	REINFORCED CONCRETE PIPE (15" RCP)	LF	1500
C701(53)(G)	REINFORCED CONCRETE PIPE (18" RCP)	LF	30
C701(53)(I)	REINFORCED CONCRETE PIPE (24" RCP)	LF	480
C701(57)(A)	YARD DRAIN SERVICE LINE (6" PVC)	LF	120
C702(52)(J)(1)	NO. 1 STANDARD DRAIN MANHOLE	FTHT	190
C702(52)(J)(2)	TYPE A CATCH BASIN ADJUSTMENT	EA	5
C702(53)(L)	TYPE C CATCH BASIN ADJUSTMENT	EA	14
C702(53)(V)	REHABILITATE EXISTING CATCH BASIN	EA	1
C702(54)(A)(1)	ADJUST MANHOLE OR DROP INLET UP TO 6" WITH BRICK AND MORTAR	EA	35
C706(51)	CONCRETE SIDEWALK (4" THICK)	SY	1016
C706(52)	CONCRETE DRIVEWAY (6" THICK)	SY	360
C706(54)	SIDEWALK AT INTERSECTIONS INCLUDING HANDICAPPED RAMPS (6" THICK)	SY	210
C706(62)	RESETTING TILE STREET NAME	EA	3
C706(57)	BRICK SIDEWALK	SY	21
C707(59)	CONCRETE MOUNTABLE CURB AND GUTTER BOTTOM	LF	2376
C707(60)	6" CONCRETE BARRIER CURB & GUTTERBOTTOM OR ROLLING STRIP	LF	33
C724(51)(A)	ASPHALTIC CONCRETE REPAIR	SY	270
C729(51)	TRAFFIC SIGN	EA	10
C731(52)	REFLECTORIZED RAISED PAVEMENT MARKERS	EA	5
C732(53)	PLASTIC PAVEMENT STRIPING (BROKEN LINE)	LF	95
C741(51)(A)	4" PVC NEW WATER MAIN WITH MAIN LINE FITTINGS	LF	100
C741(71)(B-01)	6" WATER LINE OFFSET UP TO 24"	EA	2
C741(71)(E-01)	12" WATER LINE OFFSET UP TO 24"	EA	2
C742(51)(A)	INSTALL SEWER MAIN (8") (0.0'-6.0') INCL. BYPASS PUMPING	LF	525
C742(65)(C)	PIPE LINER (CIPP 8")	LF	207
C742(65)(E)	PIPE LINER (CIPP 12")	LF	376
CSS742(X8)	MANHOLE REHABILITATION, CEMENTITIOUS LINER, PARTIAL DEPTH (2-FEET)	EA	3
CSS742(X9)	MANHOLE REHABILITATION, CEMENTITIOUS LINER, FULL DEPTH	FH	24
C742(60)	REPLACE EXIST. SEWER H.C. FROM NEW MAIN TO BACK OF CURB	EA	12
C742(63)	REPLACE EXIST. SEWER H.C. BEYOND BACK OF CURB	LF	164
C742(66)(B)	CUT LINER TO RESTORE EXISTING SEWER HOUSE CONNECTION (6", CIPP)	EA	16
CSS742(X13)	SANITARY SEWER SERVICE LATERAL CCTV INSPECTION	EA	15
CSS742(X7)	SEWER SERVICE LATERAL LINING, (6" CIPP)	EA	15
CSS742(X3)(C)(B)	SEWER POINT REPAIR UP TO 12 FEET (8" AT 6.1'-8.0')	EA	5
CSS742(X4)(C)(B)	SEWER POINT REPAIR BEYOND 12 FEET (8" AT 6.1'-8.0')	LF	5
CSS742(X3)(E)(E)	SEWER POINT REPAIR UP TO 12 FEET (12" AT 12.1'-14.0')	EA	5
CSS742(X4)(E)(E)	SEWER POINT REPAIR BEYOND 12 FEET (12" AT 12.1'-14.0')	LF	5
CF-3	SAW CUT CONCRETE CURB, PAVEMENT, SIDEWALK, DRIVEWAY, ETC. ACCORDING TO PLANS	LF	395
CF-4	SAW CUT, WHEEL CUT OR SPADE CUT EXISTING ASPHALT ACCORDING TO PLANS	LF	983
CF-371	MANHOLE COVER	EA	5
CF-372	MANHOLE FRAME	EA	5
CF-375	MANHOLE REPAIR OR VERTICAL ADJUSTMENT UP TO 6" REUSING EXISTING METAL CASTINGS	EA	4
SP-1	EXPLORATORY EXCAVATION (0.0'-6.0')	EA	12
SP-2	EXPLORATORY EXCAVATION (6.1' - 10.0')	EA	12
SP-3	42" COMPRESSION FIT HDPE FOR THE 43" CAST IRON WATER TRANSMISSION MAIN	LF	2130
SP-4	REMOVE EXISTING 43" WATER MAIN	LF	1300
SP-5	42" DUCTILE IRON PIPE WITH FITTINGS	LF	1400
SP-6	12" BLOW OFF VALVE ASSEMBLY	EA	2
SP-7	COMBINATION CATCH BASIN	EA	6

STATE OF LOUISIANA
ANDREW K. WOODROOF
RBO. No. 37256
REGISTERED
PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
3 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

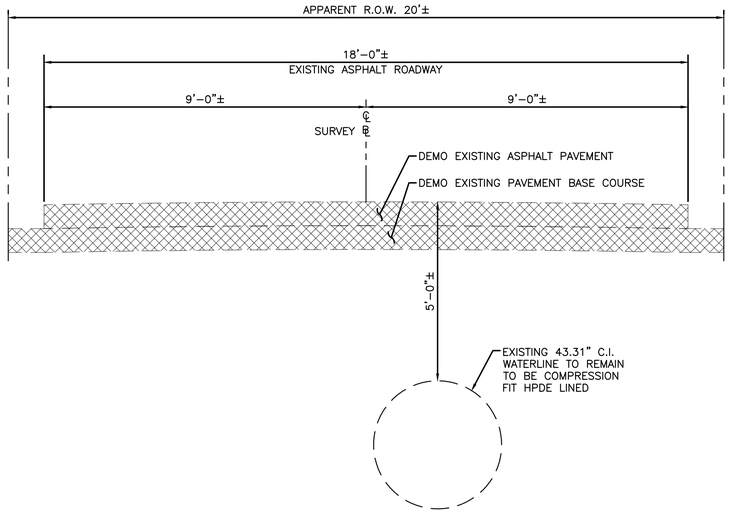
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	3

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

SUMMARY OF ESTIMATED QUANTITIES

DEPARTMENT OF PUBLIC WORKS

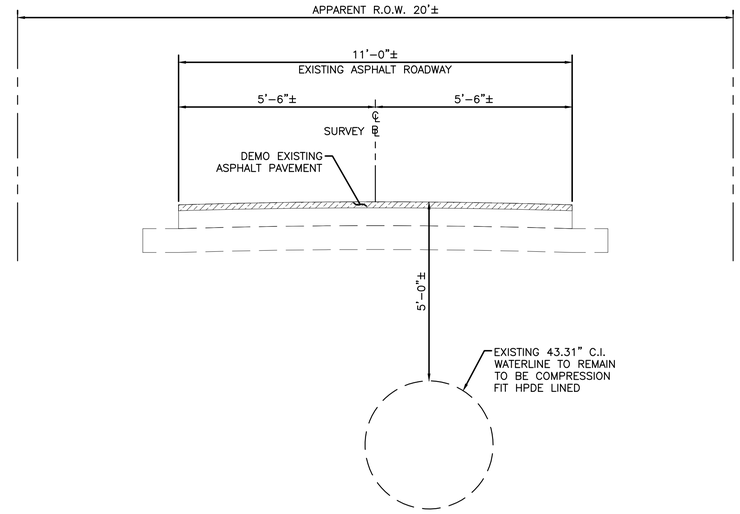
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_03_Summary Sheets LAYOUT TAB: 3 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 99+90.00 TO STA. 100+60.00

TYPICAL EXISTING ROADWAY SECTION
GRAPE STREET

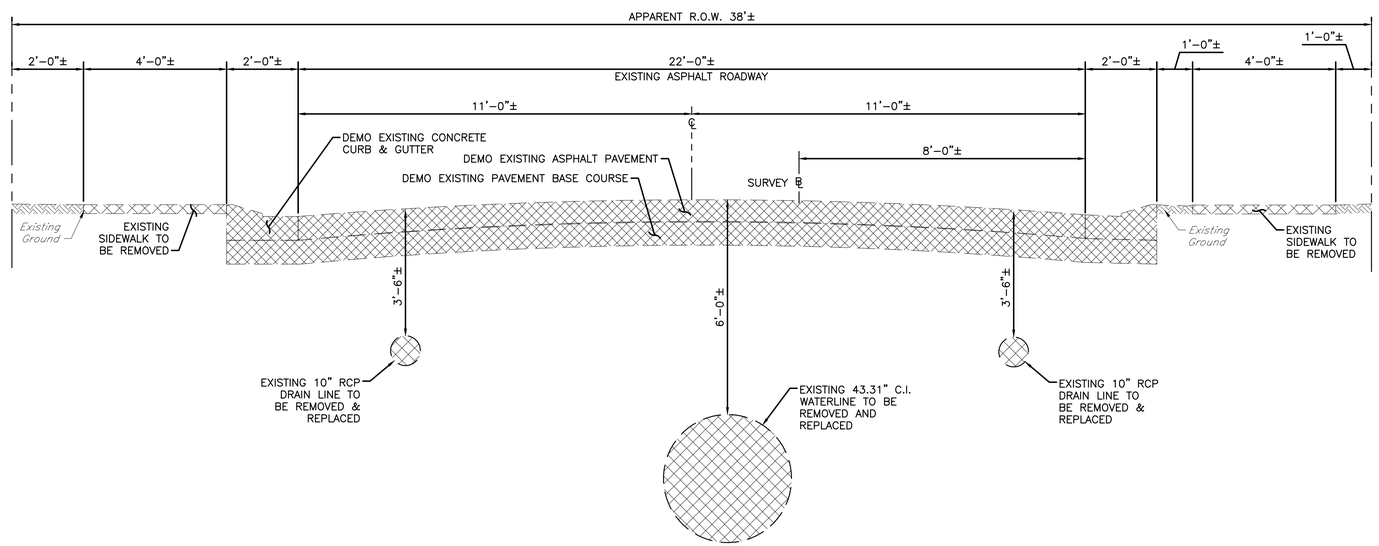
SCALE: 1/2" = 1'-0"



APPLIES TO STA. 100+60.00 TO STA. 101+50.00

TYPICAL EXISTING ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"



APPLIES TO STA. 101+50.00 TO STA. 103+89.50

TYPICAL EXISTING ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"

NOTES:
1. ALL TYPICAL SECTIONS ARE LOOKING DOWN STATION.
2. SIZE AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATIONS AND VARY FROM STATION TO STATION.

STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
4 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.467.9922 FAX: 504.467.9923

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	4
CHECKED	FTL/AKW		

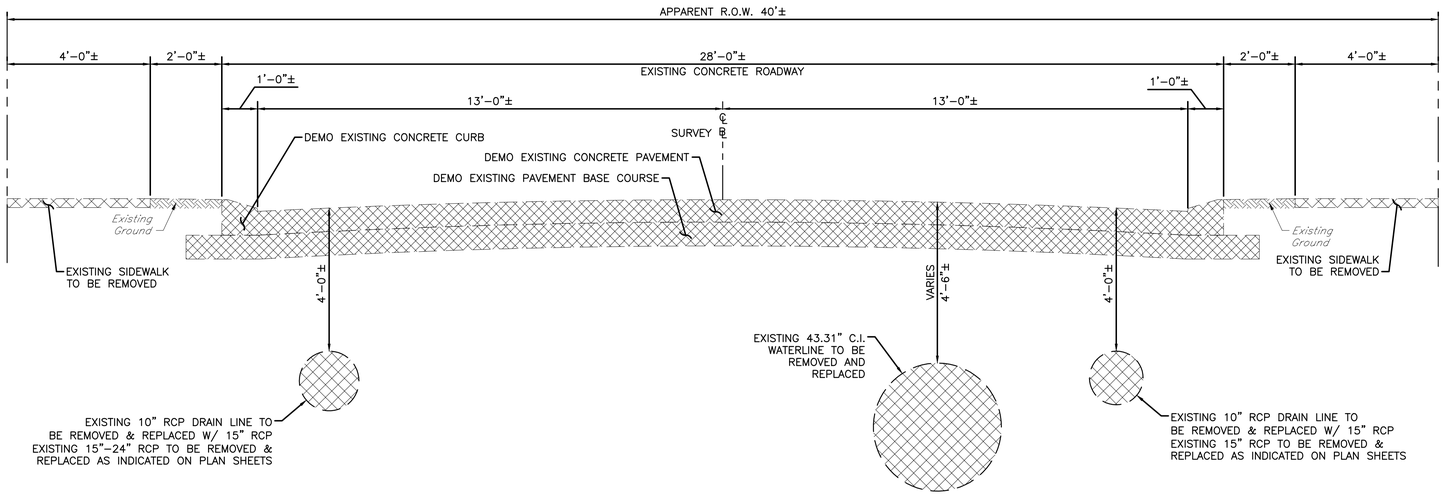
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET

TYPICAL EXISTING ROADWAY SECTIONS

DEPARTMENT OF PUBLIC WORKS

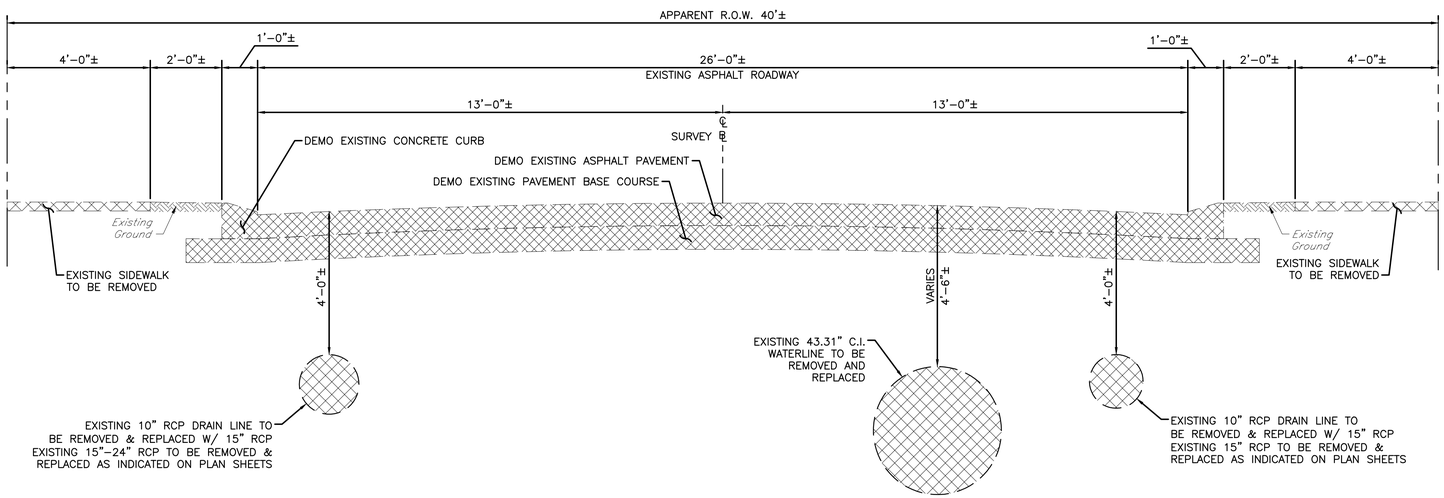
DWG PATH: S:\(660) NOSWB\660-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 4 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 103+89.50 TO STA. 105+55.00
STA. 106+12.50 TO STA. 108+18.00
STA. 108+86.00 TO STA. 111+42.50

TYPICAL EXISTING ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"



APPLIES TO STA. 105+55.00 TO STA. 106+12.50
STA. 108+18.00 TO STA. 108+86.00
STA. 111+42.50 TO STA. 112+25.00

TYPICAL EXISTING ROADWAY SECTION
GRAPE STREET

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STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
5 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.467.9922 FAX: 504.467.9923

DIGITAL ENGINEERING & IMAGING, INC.
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KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	5
CHECKED	FTL/AKW		

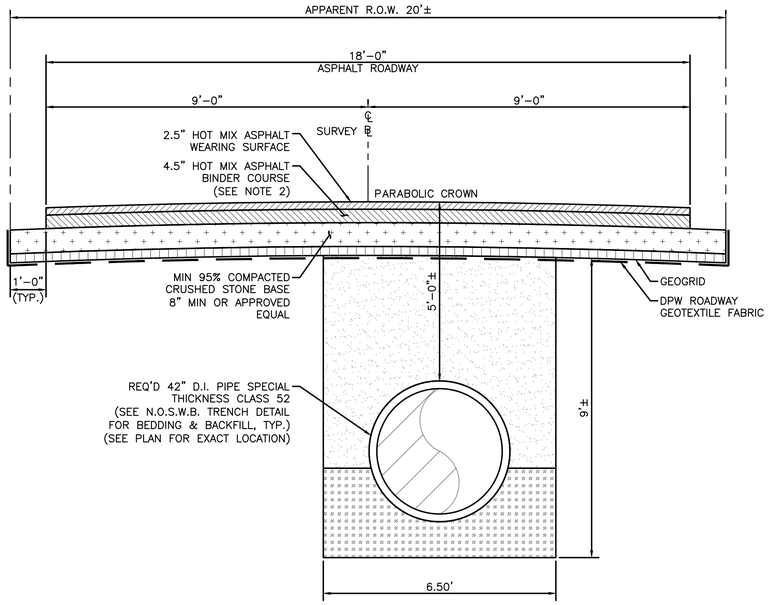
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET

TYPICAL EXISTING ROADWAY SECTIONS

DEPARTMENT OF PUBLIC WORKS

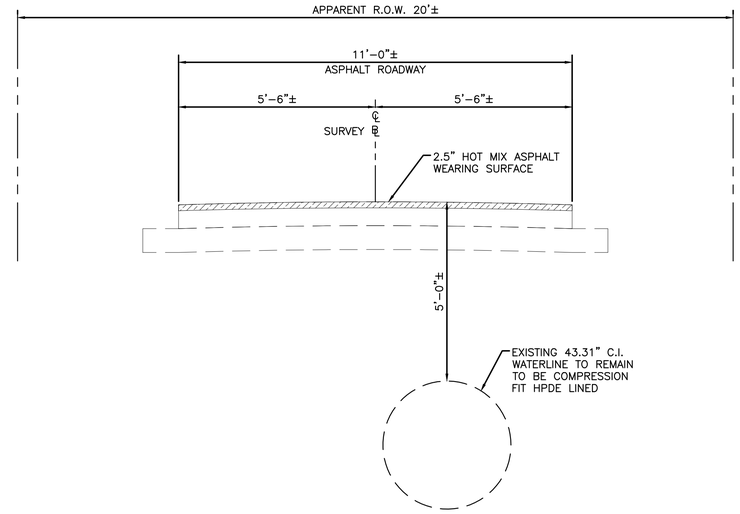
DWG PATH: S:\(660) NOSWB\660-0300.01 CC. Broadmoor, Fountainbleau TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 5 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 99+90.00 TO STA. 100+60.00

TYPICAL PROPOSED ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"



APPLIES TO STA. 100+60.00 TO STA. 101+50.00

TYPICAL PROPOSED ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"

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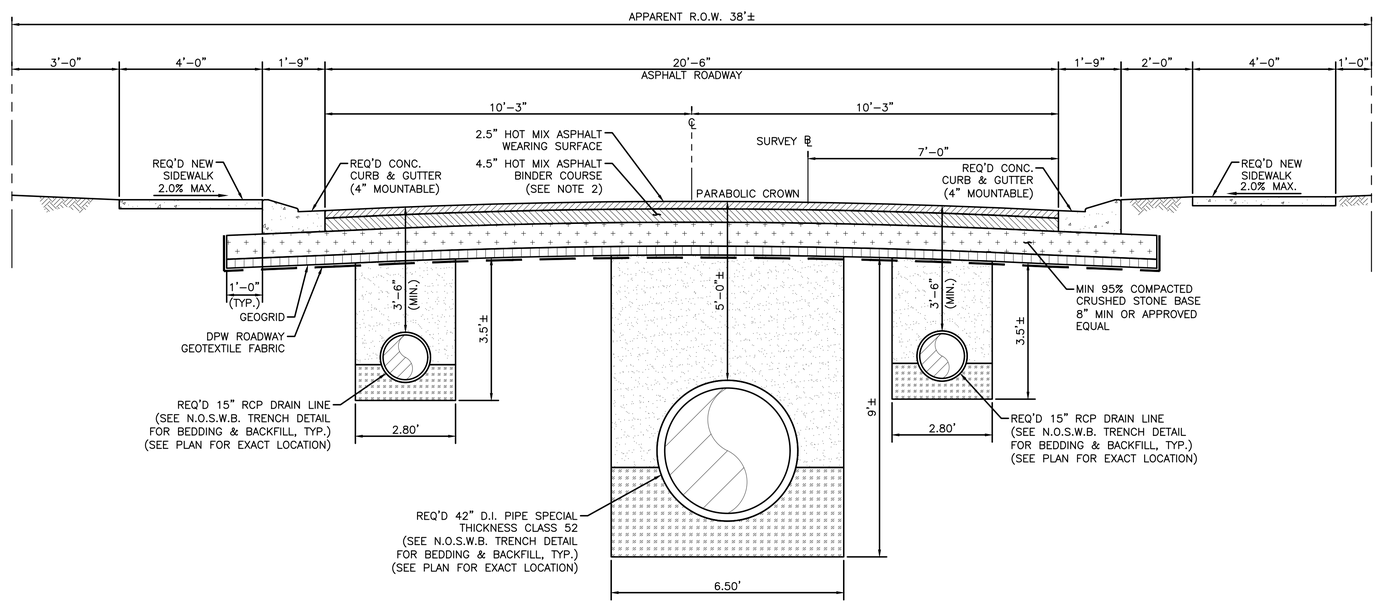


APPLIES TO STA. 101+50.00 TO STA. 103+89.50

TYPICAL PROPOSED ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
6 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERING
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.467.9693 FAX: 504.467.9694

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	6
CHECKED	FTL/AKW		

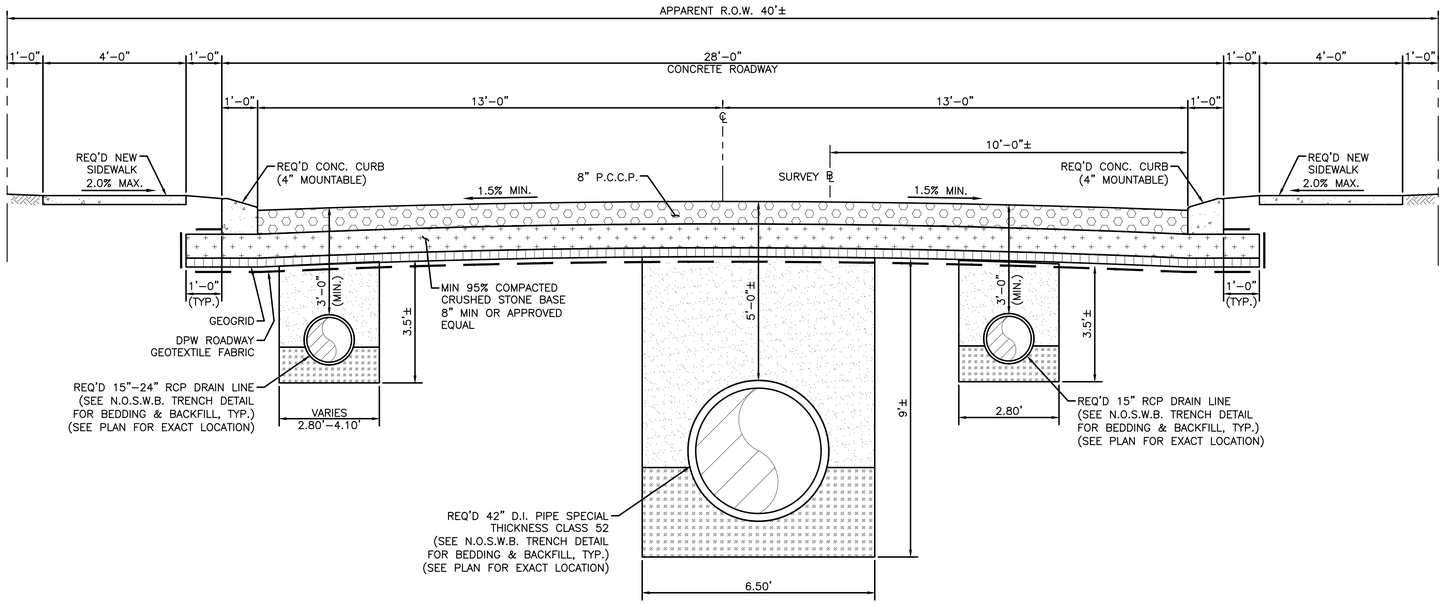
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET

TYPICAL PROPOSED ROADWAY SECTIONS

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

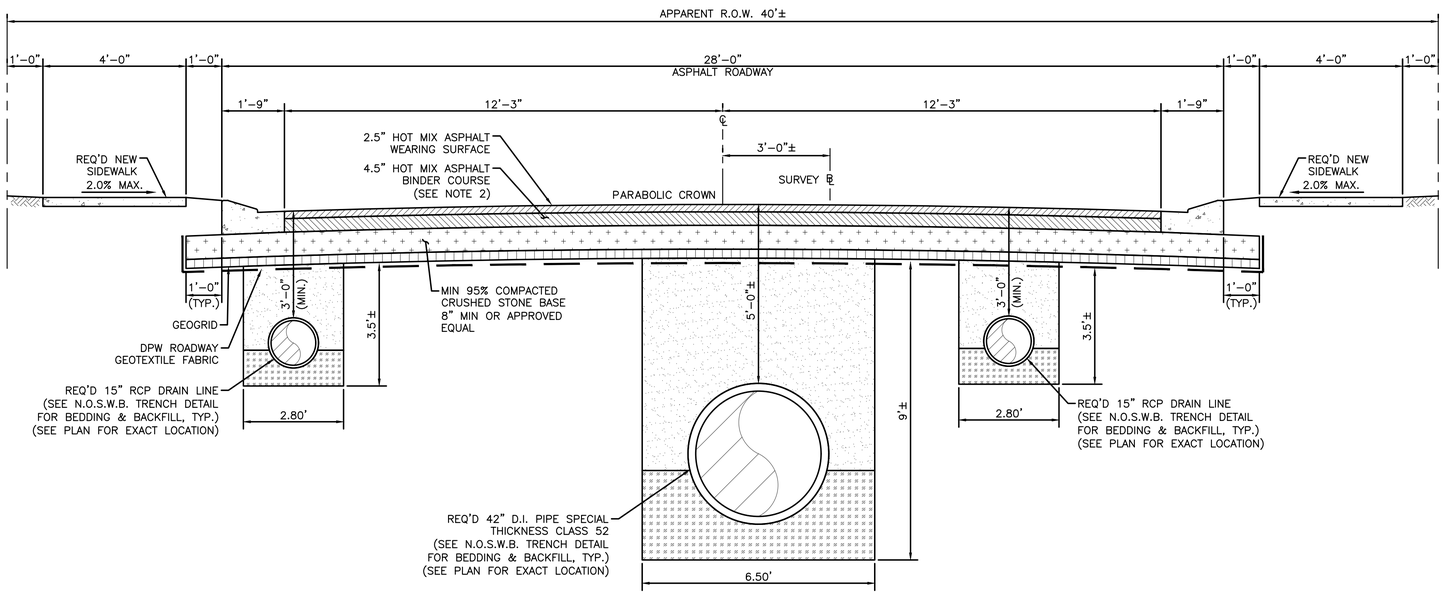
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 6 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 103+89.50 TO STA. 105+55.00
STA. 106+12.50 TO STA. 108+18.00
STA. 108+86.00 TO STA. 111+42.50

TYPICAL PROPOSED ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"



APPLIES TO STA. 105+55.00 TO STA. 106+12.50
STA. 108+18.00 TO STA. 108+86.00
STA. 111+42.50 TO STA. 112+25.00

TYPICAL PROPOSED ROADWAY SECTION
GRAPE STREET

SCALE: 1/2" = 1'-0"

NOTES:
1. ALL TYPICAL SECTIONS ARE LOOKING DOWN STATION.
2. SIZE AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATIONS AND VARY FROM STATION TO STATION.

STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
7 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERING
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.467.9693 FAX: 504.467.9694

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	7

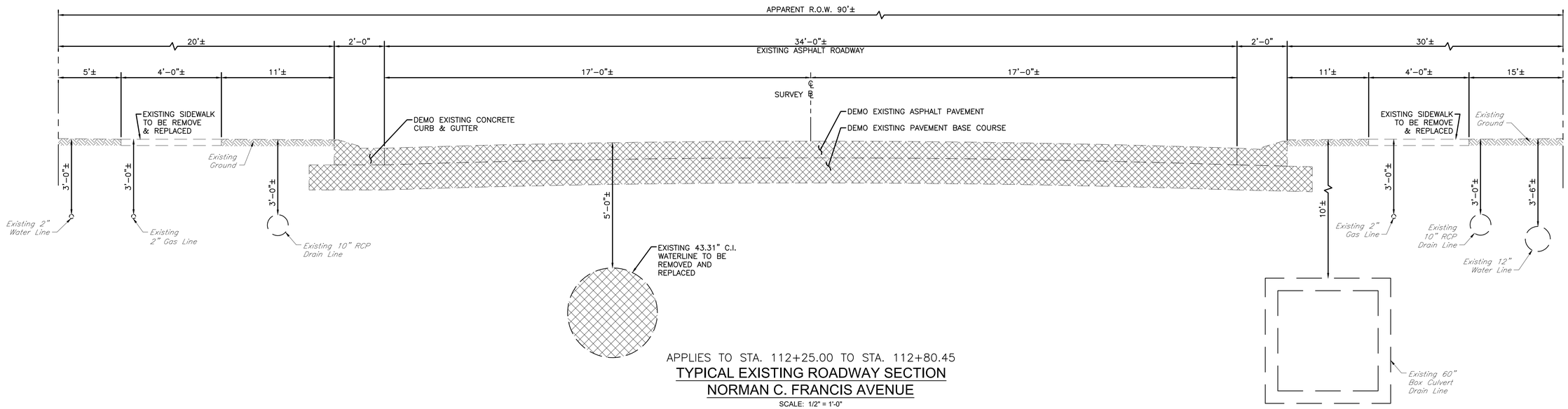
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET

TYPICAL PROPOSED ROADWAY SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 7 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 112+25.00 TO STA. 112+80.45

TYPICAL EXISTING ROADWAY SECTION
NORMAN C. FRANCIS AVENUE

SCALE: 1/2" = 1'-0"

NOTES:
1. ALL TYPICAL SECTIONS ARE LOOKING DOWN STATION.
2. SIZE AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATIONS AND VARY FROM STATION TO STATION.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
8 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	8
CHECKED	FTL/AKW		

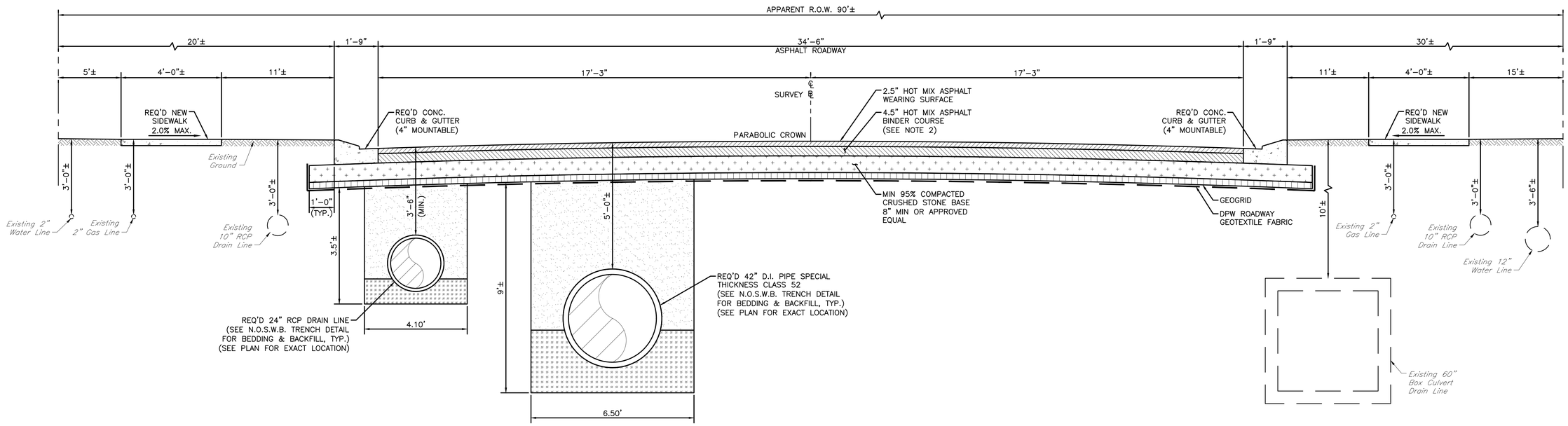
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

NORMAN C. FRANCIS AVENUE

TYPICAL EXISTING ROADWAY SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660)NOSWB\660-0300.01 CC. Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 8 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 112+25.00 TO STA. 113+00.00

TYPICAL PROPOSED ROADWAY SECTION
NORMAN C. FRANCIS AVENUE

SCALE: 1/2" = 1'-0"

NOTES:
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2. SIZE AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATIONS AND VARY FROM STATION TO STATION.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

NO.	DATE	REVISION DESCRIPTION	BY

SHEET NUMBER
9 of 27

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	9
CHECKED	FTL/AKW		

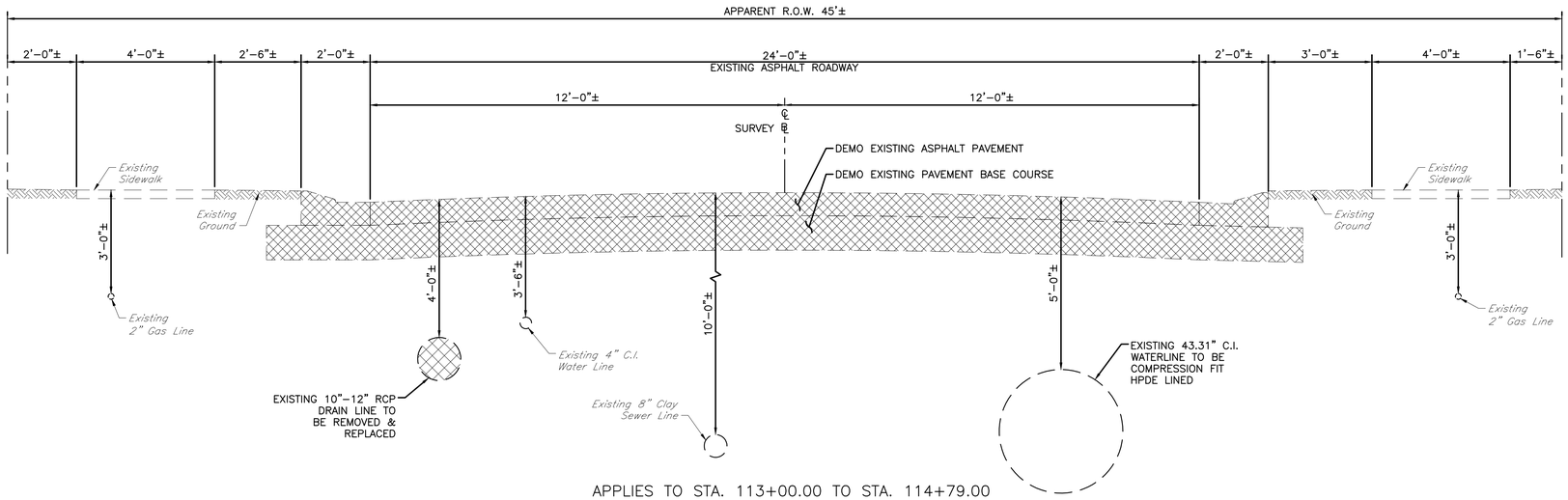
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

NORMAN C. FRANCIS AVENUE

TYPICAL PROPOSED ROADWAY SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC. Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 9 DATE of PLOT: Friday, November 05, 2021 @ 9:48am

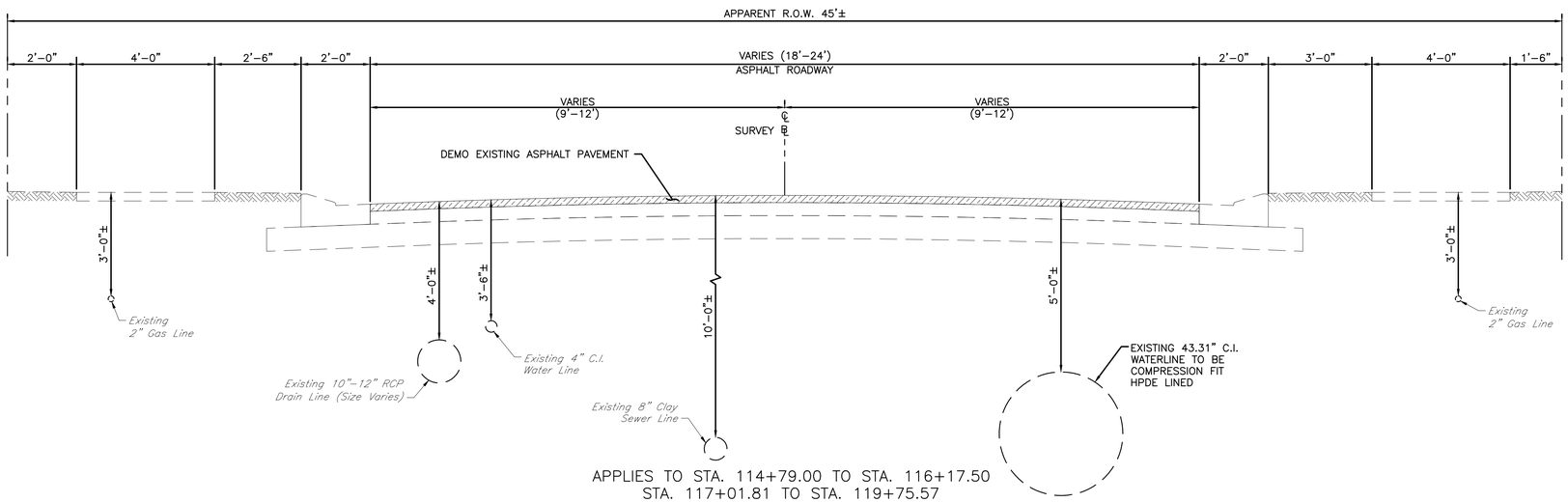


APPLIES TO STA. 113+00.00 TO STA. 114+79.00

TYPICAL EXISTING ROADWAY SECTION
EDEN STREET

SCALE: 1/2" = 1'-0"

NOTES:
1. ALL TYPICAL SECTIONS ARE LOOKING DOWN STATION.
2. SIZE AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATIONS AND VARY FROM STATION TO STATION.



APPLIES TO STA. 114+79.00 TO STA. 116+17.50
STA. 117+01.81 TO STA. 119+75.57
STA. 121+34.00 TO STA. 122+31.00
STA. 127+76.00 TO STA. 129+65.21

TYPICAL EXISTING ROADWAY SECTION
EDEN STREET

SCALE: 1/2" = 1'-0"

NOTES:
1. ALL TYPICAL SECTIONS ARE LOOKING DOWN STATION.
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STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
10 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.467.9164 FAX: 504.467.9235
CERTIFICATE OF AUTHORIZATION NO. 2000-3

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	10

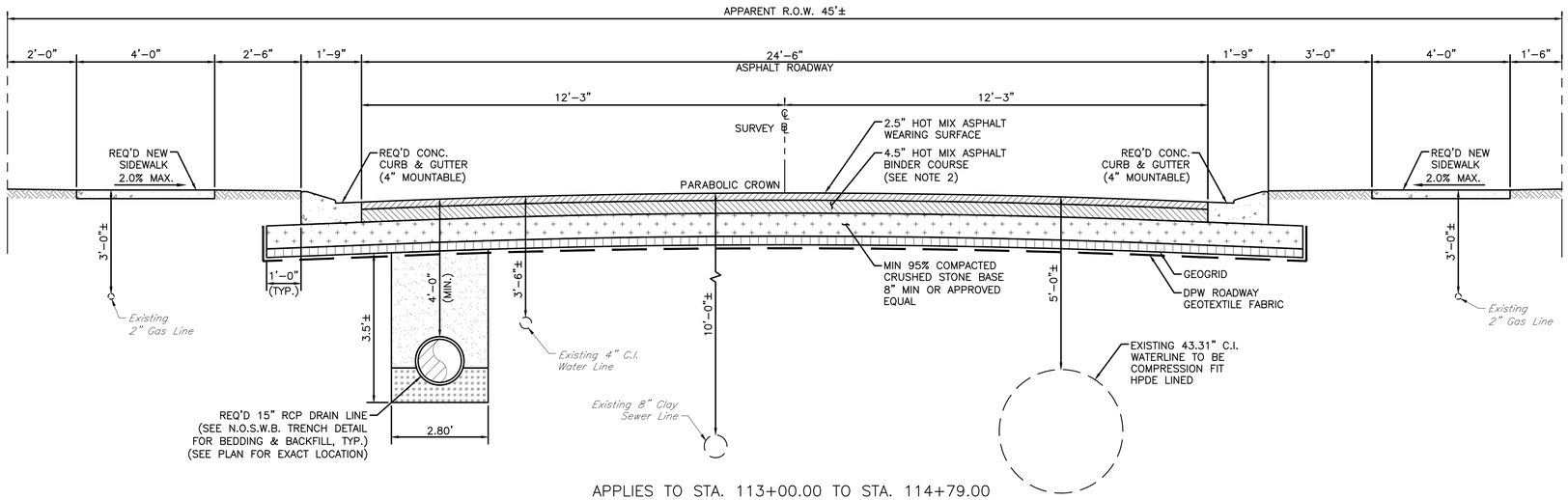
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

EDEN STREET

TYPICAL EXISITNG ROADWAY SECTIONS

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details
LAYOUT TAB: 10
DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 113+00.00 TO STA. 114+79.00

TYPICAL PROPOSED ROADWAY SECTION
EDEN STREET

SCALE: 1/2" = 1'-0"

NOTES:
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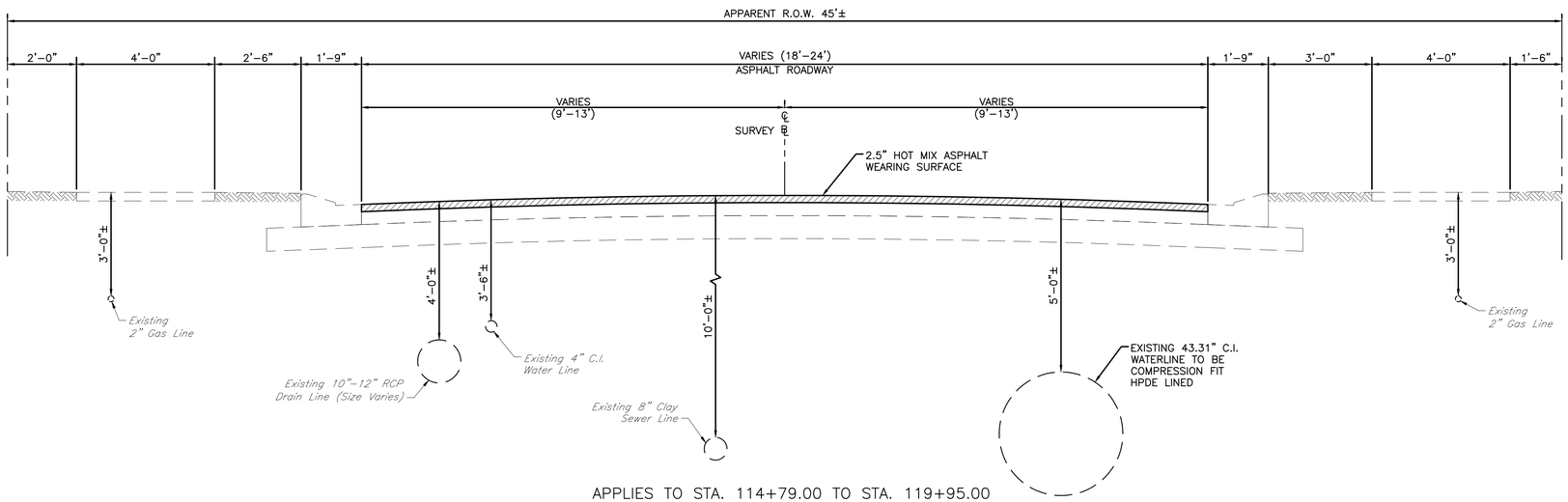

APPLIES TO STA. 114+79.00 TO STA. 119+95.00
STA. 121+34.00 TO STA. 123+31.00
STA. 127+76.00 TO STA. 129+15.50

TYPICAL PROPOSED ROADWAY SECTION
EDEN STREET

SCALE: 1/2" = 1'-0"

NOTES:
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STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
11 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	11

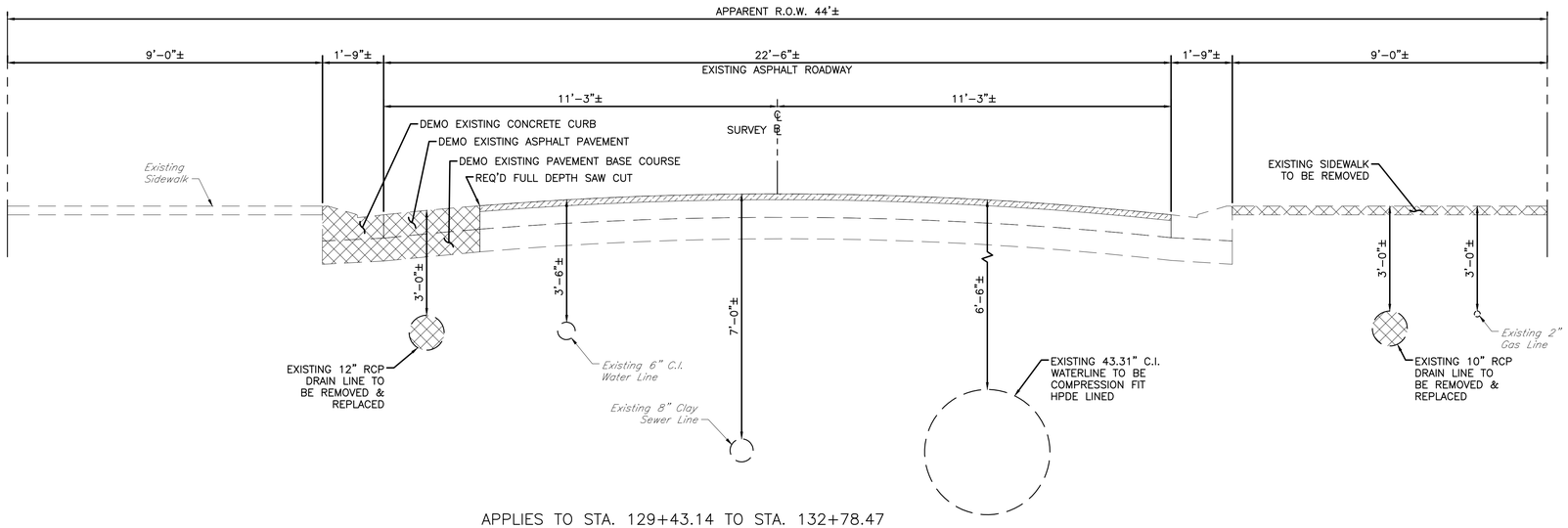
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

EDEN STREET

TYPICAL PROPOSED ROADWAY SECTIONS

CITY OF NEW ORLEANS DEPARTMENT OF PUBLIC WORKS

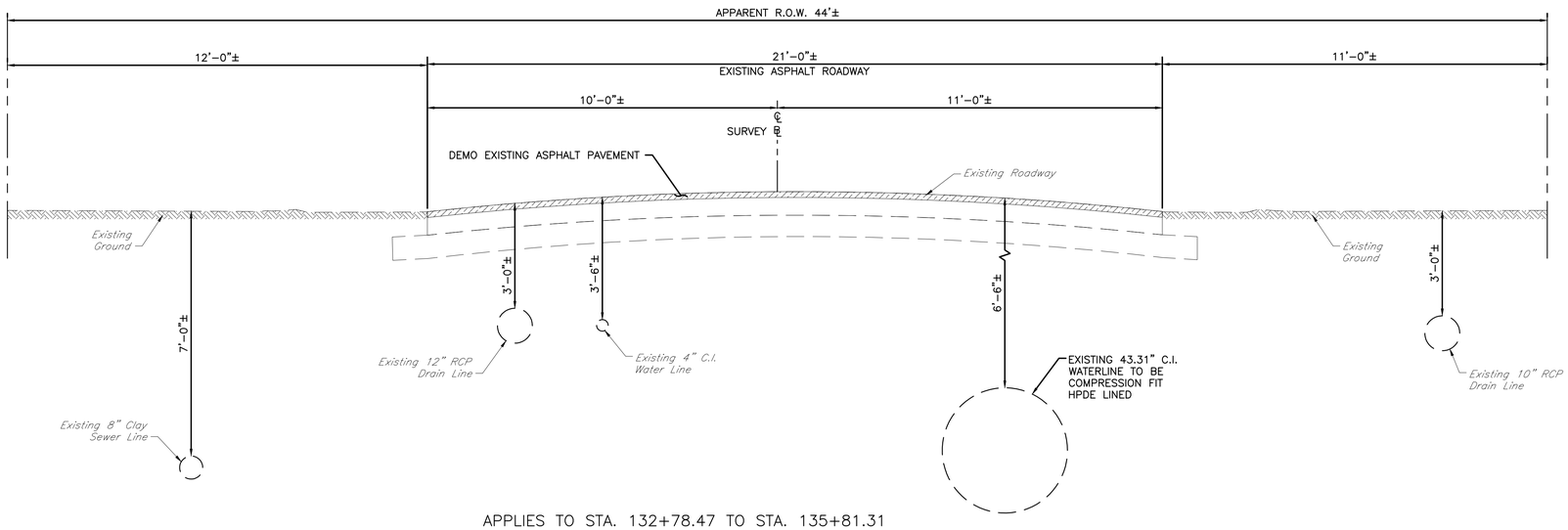
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details
LAYOUT TAB: 11
DATE of PLOT: Friday, November 05, 2021 @ 9:48am



APPLIES TO STA. 129+43.14 TO STA. 132+78.47

TYPICAL EXISTING ROADWAY SECTION
S. DUPRE STREET

SCALE: 1/2" = 1'-0"



APPLIES TO STA. 132+78.47 TO STA. 135+81.31

TYPICAL EXISTING ROADWAY SECTION
S. DUPRE STREET

SCALE: 1/2" = 1'-0"

NOTES:
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STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
12 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	12

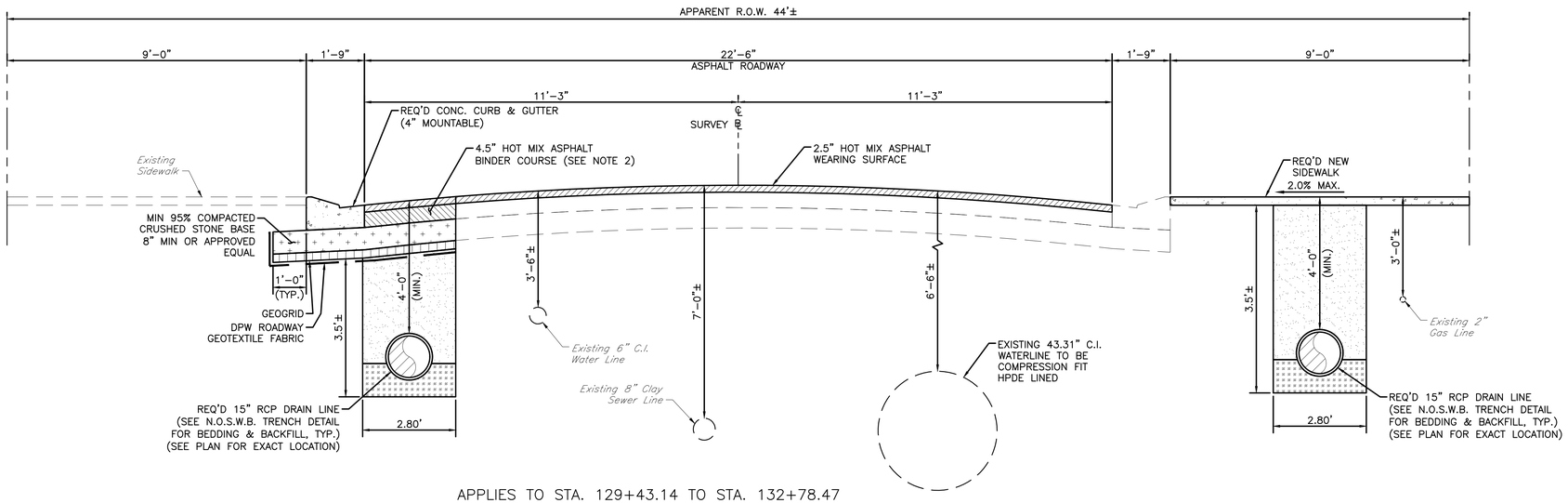
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

S. DUPRE STREET

TYPICAL EXISTING ROADWAY SECTIONS

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 12 DATE of PLOT: Friday, November 05, 2021 @ 9:48am

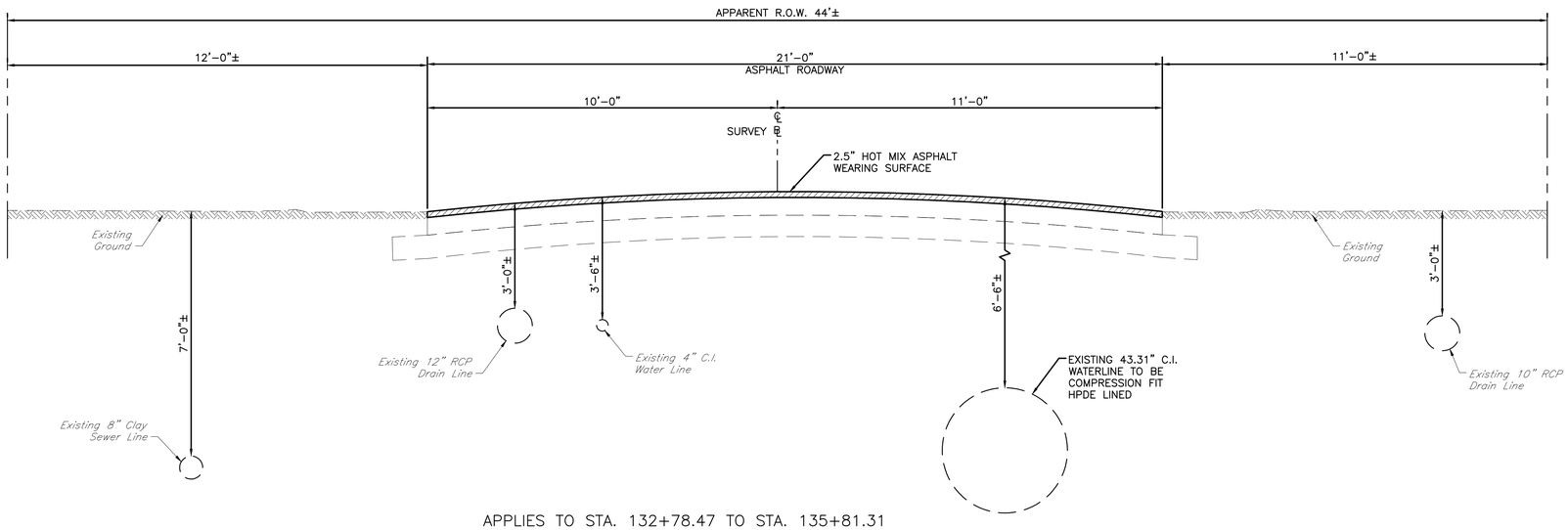


APPLIES TO STA. 129+43.14 TO STA. 132+78.47

TYPICAL PROPOSED ROADWAY SECTION
S. DUPRE STREET

SCALE: 1/2" = 1'-0"

NOTES:
1. ALL TYPICAL SECTIONS ARE LOOKING DOWN STATION.
2. SIZE AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATIONS AND VARY FROM STATION TO STATION.



APPLIES TO STA. 132+78.47 TO STA. 135+81.31

TYPICAL PROPOSED ROADWAY SECTION
S. DUPRE STREET

SCALE: 1/2" = 1'-0"

STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
13 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.467.9693

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	13
CHECKED	FTL/AKW		

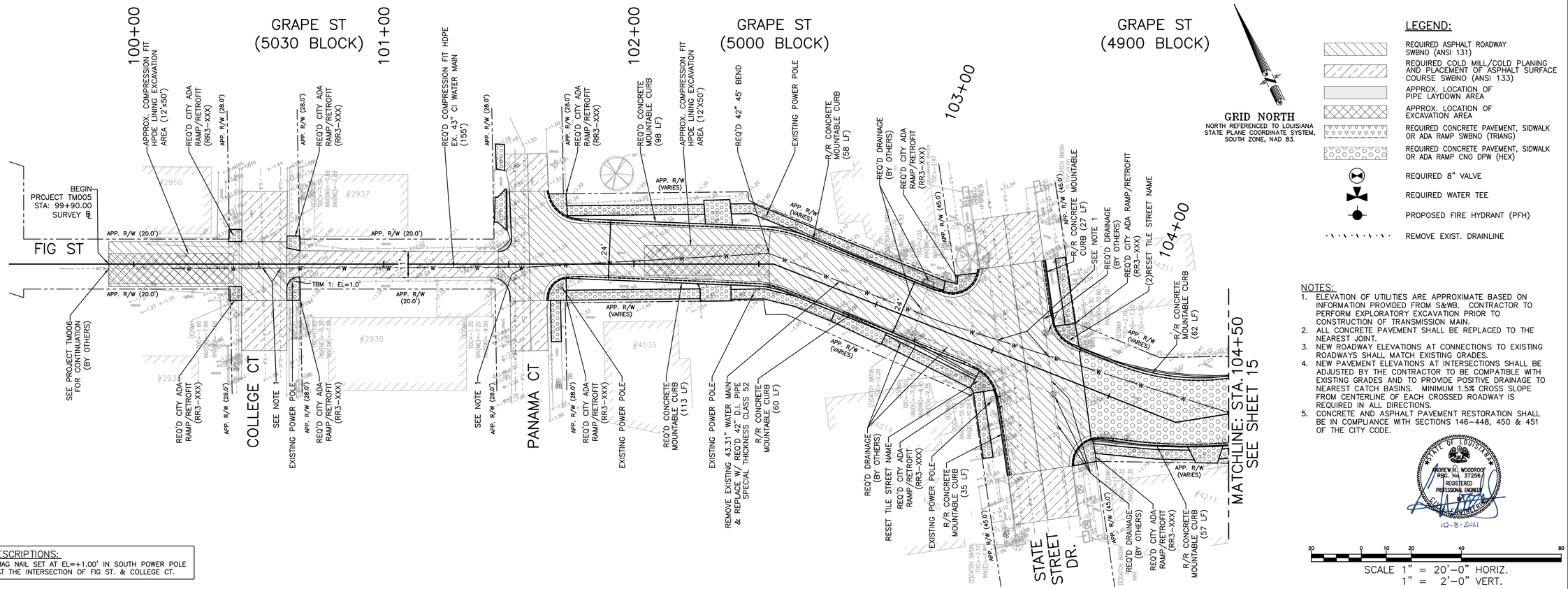
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

S. DUPRE STREET

TYPICAL PROPOSED ROADWAY SECTIONS

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_04-13_Typ Sections and Details LAYOUT TAB: 13 DATE of PLOT: Friday, November 05, 2021 @ 9:48am



LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE

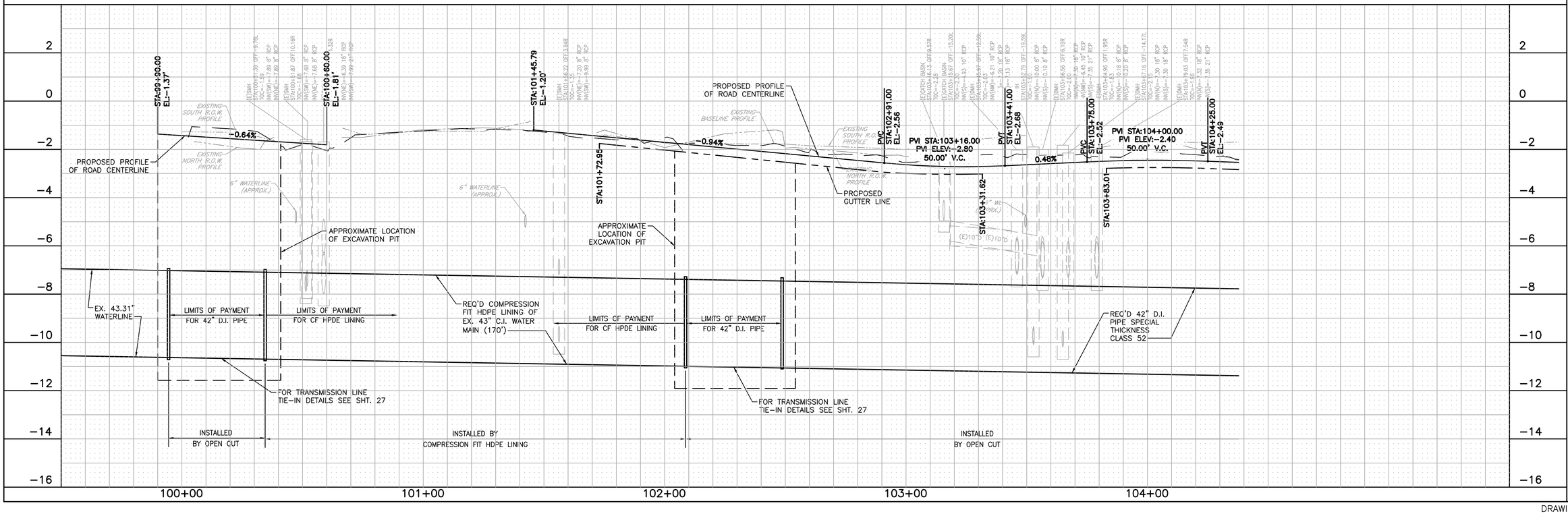
NOTES:

1. ELEVATION OF UTILITIES ARE APPROXIMATE BASED ON INFORMATION PROVIDED FROM S&WB. CONTRACTOR TO PERFORM EXPLORATORY EXCAVATION PRIOR TO CONSTRUCTION OF TRANSMISSION MAIN.
2. ALL CONCRETE PAVEMENT SHALL BE REPLACED TO THE NEAREST JOINT.
3. NEW ROADWAY ELEVATIONS AT CONNECTIONS TO EXISTING ROADWAYS SHALL MATCH EXISTING GRADES.
4. NEW PAVEMENT ELEVATIONS AT INTERSECTIONS SHALL BE ADJUSTED BY THE CONTRACTOR TO BE COMPATIBLE WITH EXISTING GRADES AND TO PROVIDE POSITIVE DRAINAGE TO NEAREST CATCH BASINS. MINIMUM 1.5% CROSS SLOPE FROM CENTERLINE OF EACH CROSSED ROADWAY IS REQUIRED IN ALL DIRECTIONS.
5. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146-448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

TBM DESCRIPTIONS:

TBM 1: MAG NAIL SET AT EL=+1.00' IN SOUTH POWER POLE AT THE INTERSECTION OF FIG ST. & COLLEGE CT.



SHEET NUMBER
14 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	14
CHECKED	FTL/AKW		

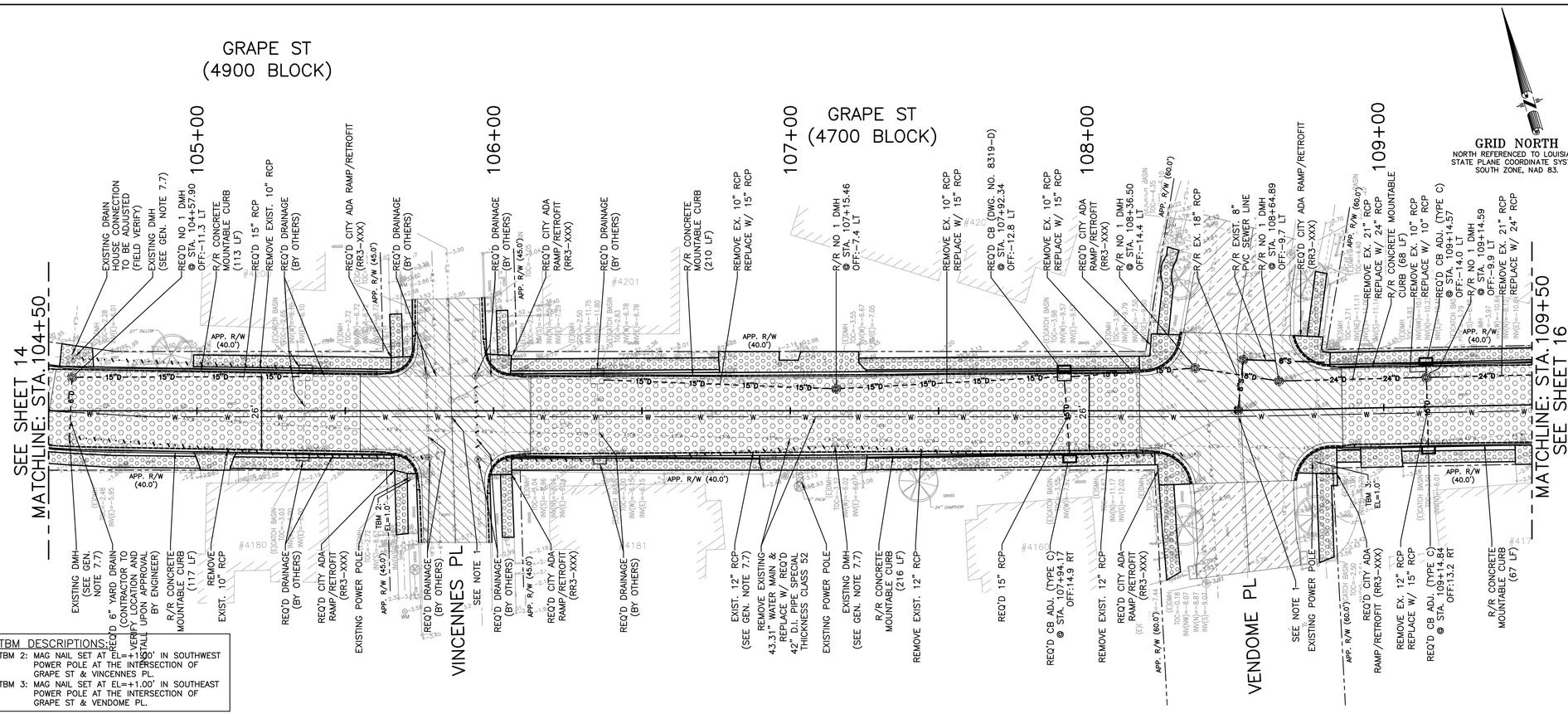
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET (6800-6900 BLOCK)

PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\60-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile
LAYOUT TAB: 14
DATE of PLOT: Friday, November 05, 2021 @ 9:48am



LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE

NOTES:

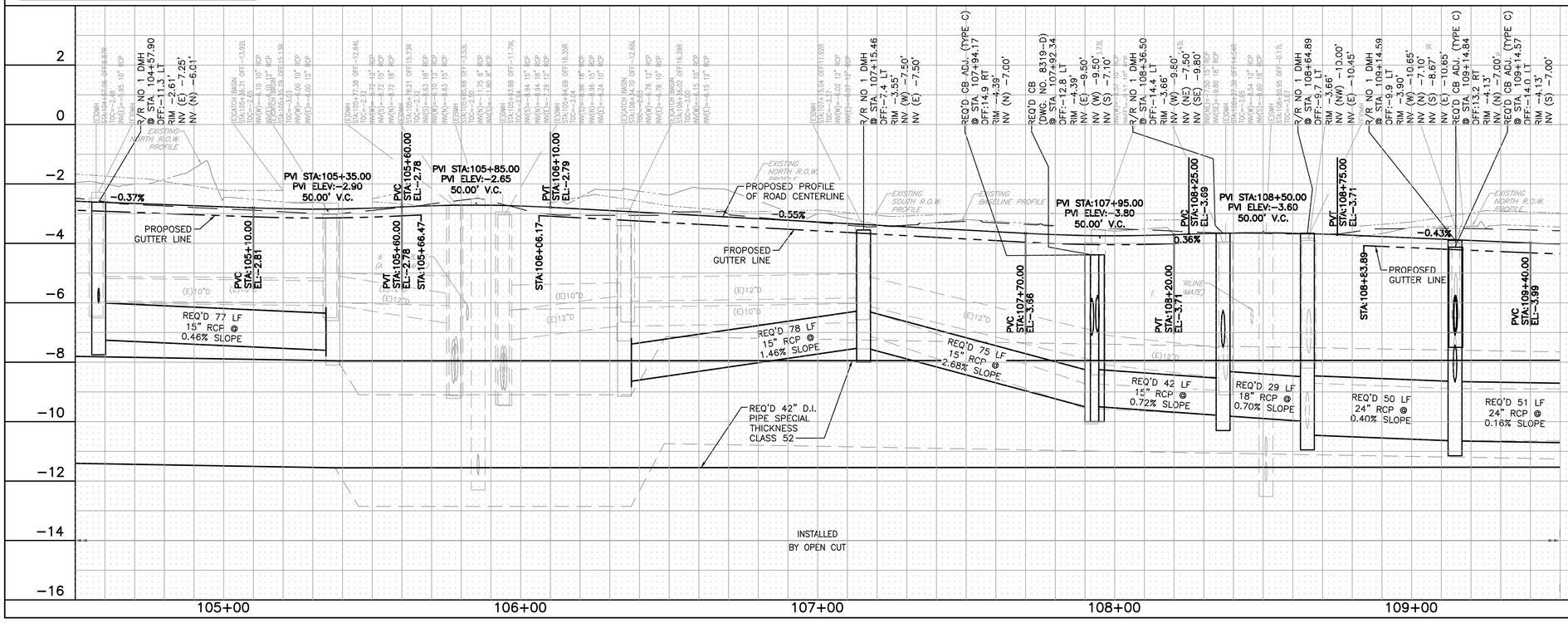
1. ELEVATION OF UTILITIES ARE APPROXIMATE BASED ON INFORMATION PROVIDED FROM S&WB. CONTRACTOR TO PERFORM EXPLORATORY EXCAVATION PRIOR TO CONSTRUCTION OF TRANSMISSION MAIN.
2. ALL CONCRETE PAVEMENT SHALL BE REPLACED TO THE NEAREST JOINT.
3. NEW ROADWAY ELEVATIONS AT CONNECTIONS TO EXISTING ROADWAYS SHALL MATCH EXISTING GRADES.
4. NEW PAVEMENT ELEVATIONS @ INTERSECTIONS SHALL BE ADJUSTED BY THE CONTRACTOR TO BE COMPATIBLE W/ EXISTING GRADES AND TO PROVIDE POSITIVE DRAINAGE TO NEAREST CATCH BASINS. MINIMUM 1.5% CROSS SLOPE FROM CENTERLINE OF EACH CROSSED ROADWAY IS REQ'D IN ALL DIRECTIONS.
5. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146-448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

TBM DESCRIPTIONS:

TBM 2: MAG NAIL SET AT EL=+1.00' IN SOUTHWEST POWER POLE AT THE INTERSECTION OF GRAPE ST & VINCENNES PL.

TBM 3: MAG NAIL SET AT EL=+1.00' IN SOUTHEAST POWER POLE AT THE INTERSECTION OF GRAPE ST & VENDOME PL.



NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

SHEET NUMBER
15 of 27

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS & SURVEYORS
3216 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
(504) 466-8221
FIRM # 2000-1000

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

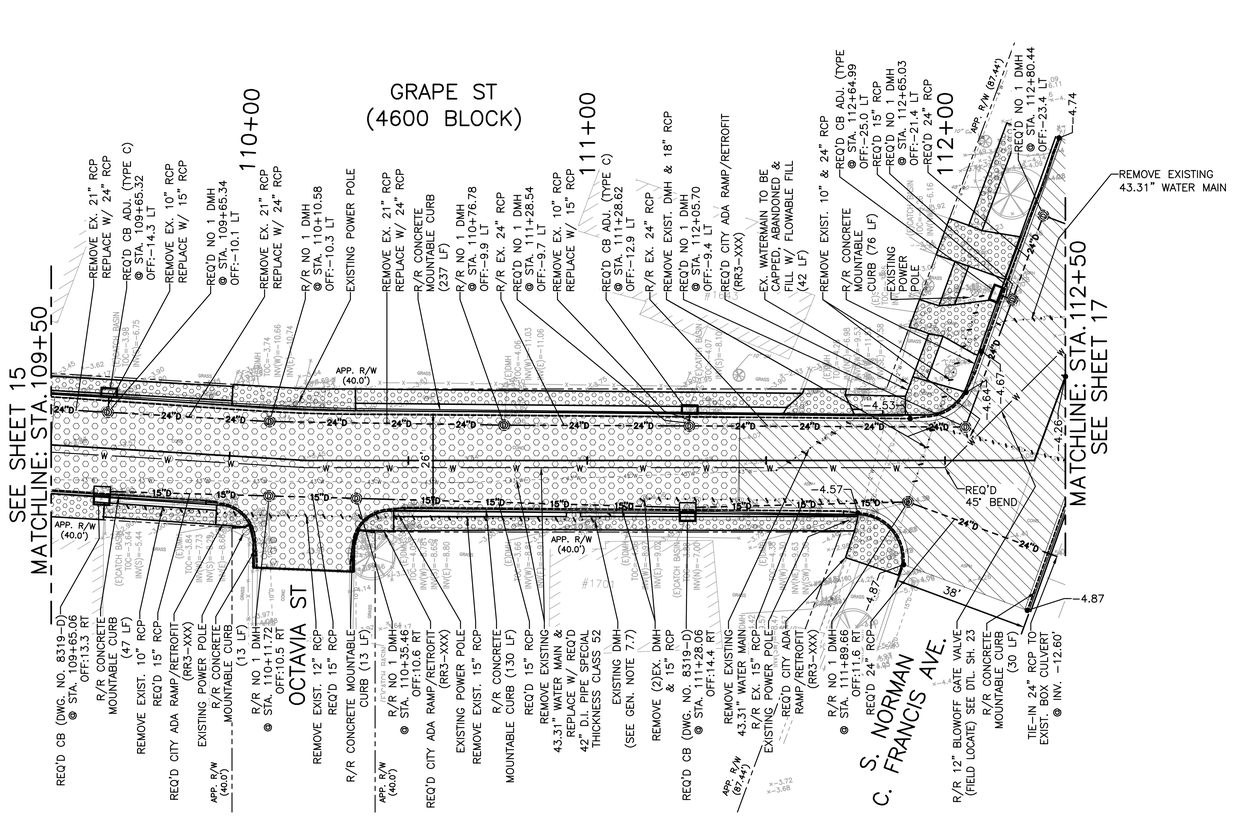
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	15

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET (5800 BLOCK)

PLAN AND PROFILE

DWG PATH: S:\(660) NOSWB\60-0300.01 CC, Broadmoor, FontainBleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile
LAYOUT TAB: 15
DATE of PLOT: Friday, November 05, 2021 @ 9:49am



GRID NORTH
NORTH REFERENCED TO LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83.

LEGEND:

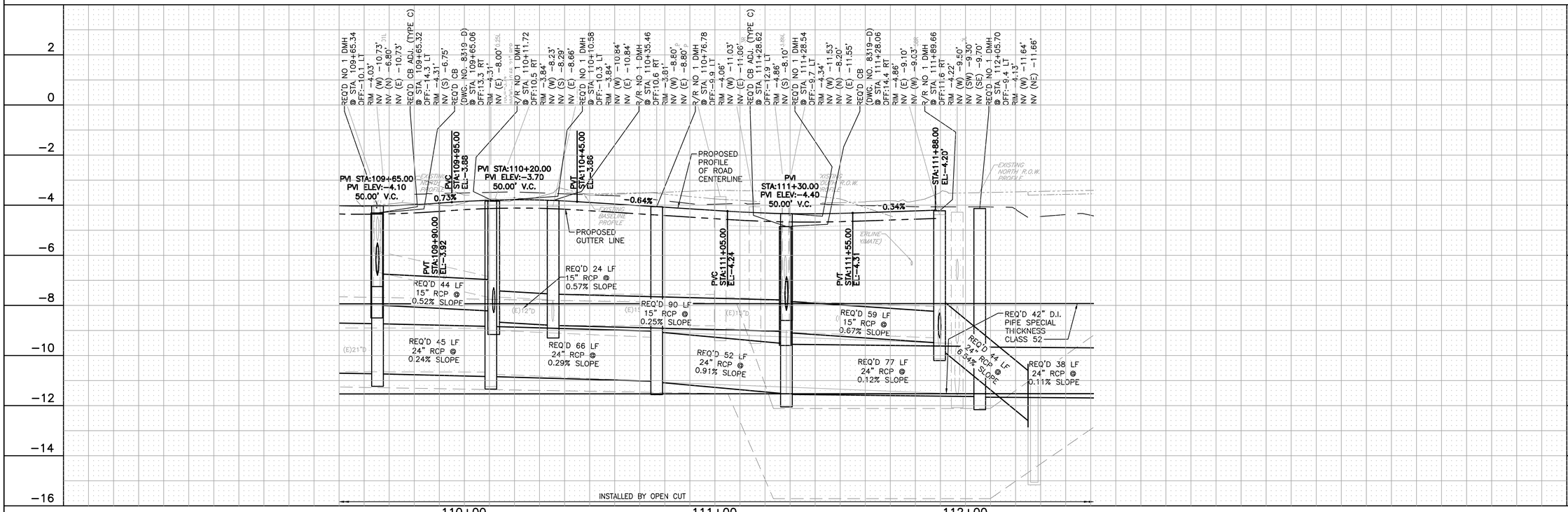
- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE
- -4.87 PROPOSED ELEVATIONS (GUTTERLINE OR ROAD CENTERLINE)

NOTES:

1. ELEVATION OF UTILITIES ARE APPROXIMATE BASED ON INFORMATION PROVIDED FROM S&WB. CONTRACTOR TO PERFORM EXPLORATORY EXCAVATION PRIOR TO CONSTRUCTION OF TRANSMISSION MAIN.
2. ALL CONCRETE PAVEMENT SHALL BE REPLACED TO THE NEAREST JOINT.
3. NEW ROADWAY ELEVATIONS AT CONNECTIONS TO EXISTING ROADWAYS SHALL MATCH EXISTING GRADES.
4. NEW PAVEMENT ELEVATIONS @ INTERSECTIONS SHALL BE ADJUSTED BY THE CONTRACTOR TO BE COMPATIBLE W/ EXISTING GRADES AND TO PROVIDE POSITIVE DRAINAGE TO NEAREST CATCH BASINS. MINIMUM 1.5% CROSS SLOPE FROM CENTERLINE OF EACH CROSSED ROADWAY IS REQ'D IN ALL DIRECTIONS.
5. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146-448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

20 0 10 20 40 80
SCALE 1" = 20'-0" HORIZ.
1" = 2'-0" VERT.



SHEET NUMBER
16 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	16

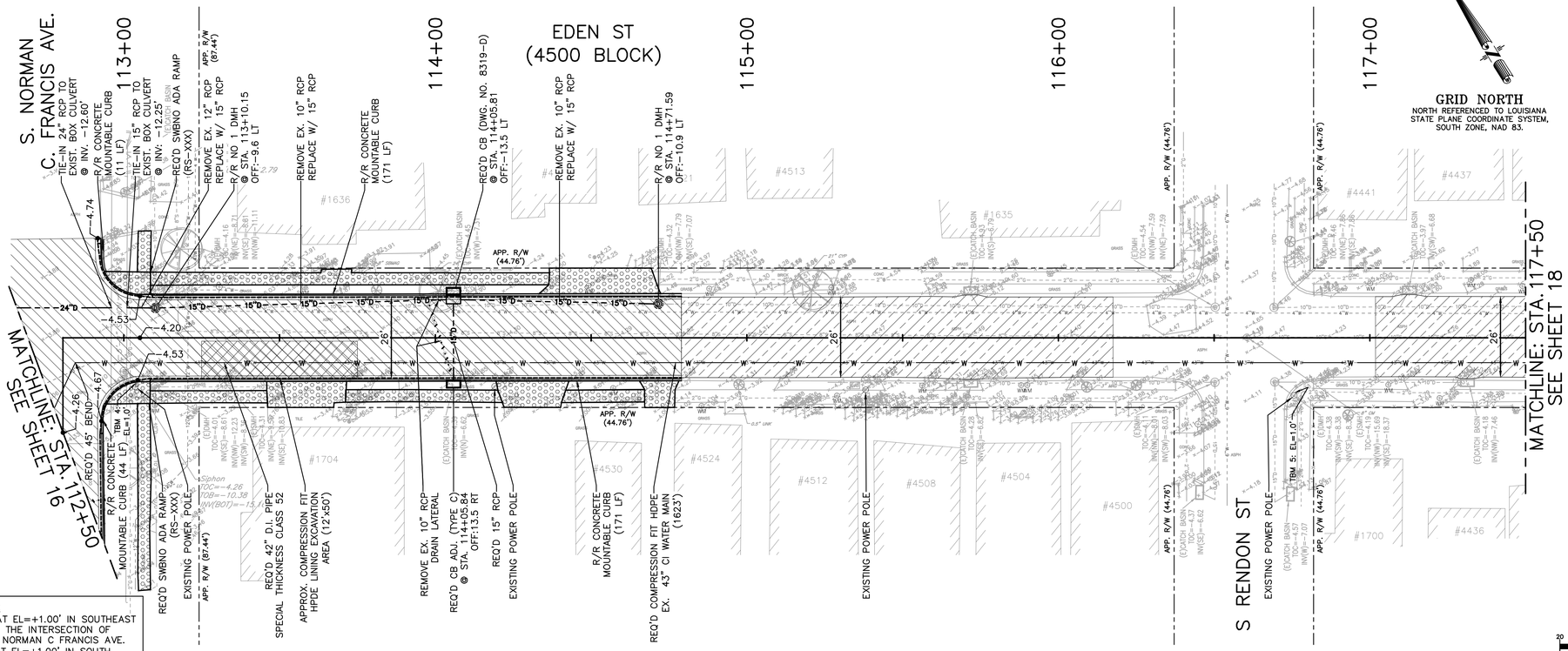
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GRAPE STREET (5400 BLOCK)

PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\60-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile LAYOUT TAB: 16 DATE of PLOT: Friday, November 05, 2021 @ 9:49am



LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE
- -4.87 PROPOSED ELEVATIONS (GUTTERLINE OR ROAD CENTERLINE)

NOTES:

1. ELEVATION OF UTILITIES ARE APPROXIMATE BASED ON INFORMATION PROVIDED FROM S&WB. CONTRACTOR TO PERFORM EXPLORATORY EXCAVATION PRIOR TO CONSTRUCTION OF TRANSMISSION MAIN.
2. NEW ROADWAY ELEVATIONS AT CONNECTIONS TO EXISTING ROADWAYS SHALL MATCH EXISTING GRADES.
3. NEW PAVEMENT ELEVATIONS @ INTERSECTIONS SHALL BE ADJUSTED BY THE CONTRACTOR TO BE COMPATIBLE W/ EXISTING GRADES AND TO PROVIDE POSITIVE DRAINAGE TO NEAREST CATCH BASINS. MINIMUM 1.5% CROSS SLOPE FROM CENTERLINE OF EACH CROSSED ROADWAY IS REQ'D IN ALL DIRECTIONS.
4. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146-448, 450 & 451 OF THE CITY CODE.

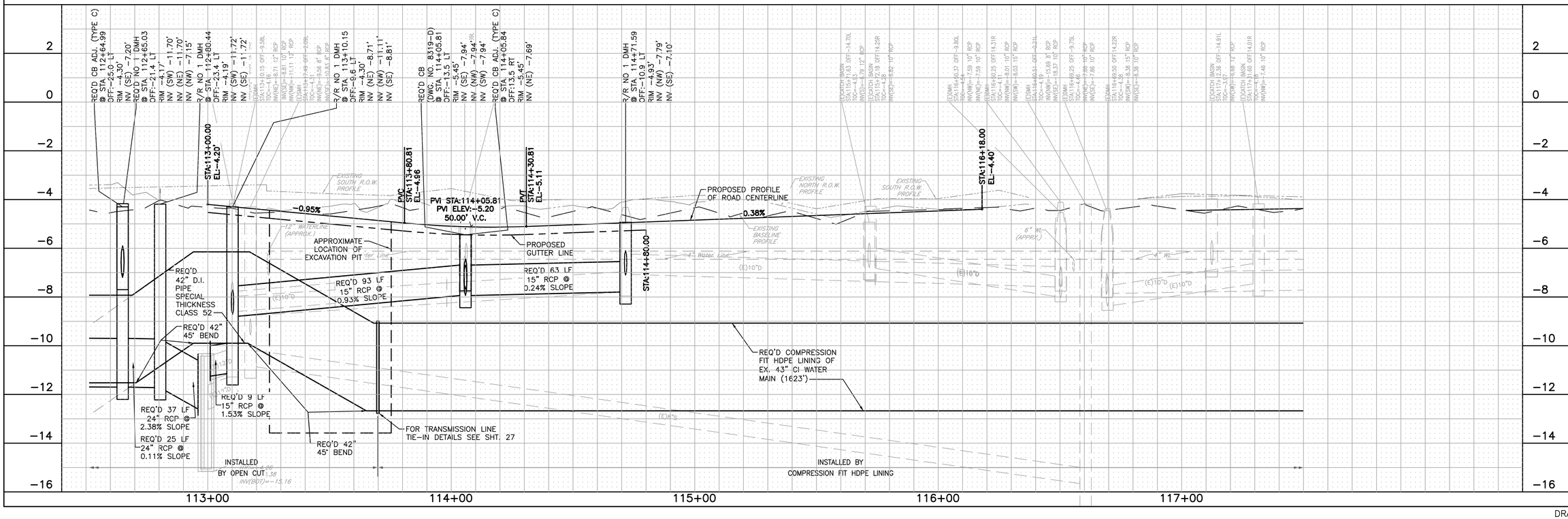
STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SCALE 1" = 20'-0" HORIZ.
1" = 2'-0" VERT.

TBM DESCRIPTIONS:

TBM 4: MAG NAIL SET AT EL=+1.00' IN SOUTHEAST POWER POLE AT THE INTERSECTION OF GRAPE ST. & S NORMAN C FRANCIS AVE.

TBM 5: MAG NAIL SET AT EL=+1.00' IN SOUTH POWER POLE AT THE INTERSECTION OF GRAPE ST. & S RENDON ST.



NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

SHEET NUMBER
17 of 27

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS, SURVEYORS, PLANNERS
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	17
CHECKED	FTL/AKW		

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

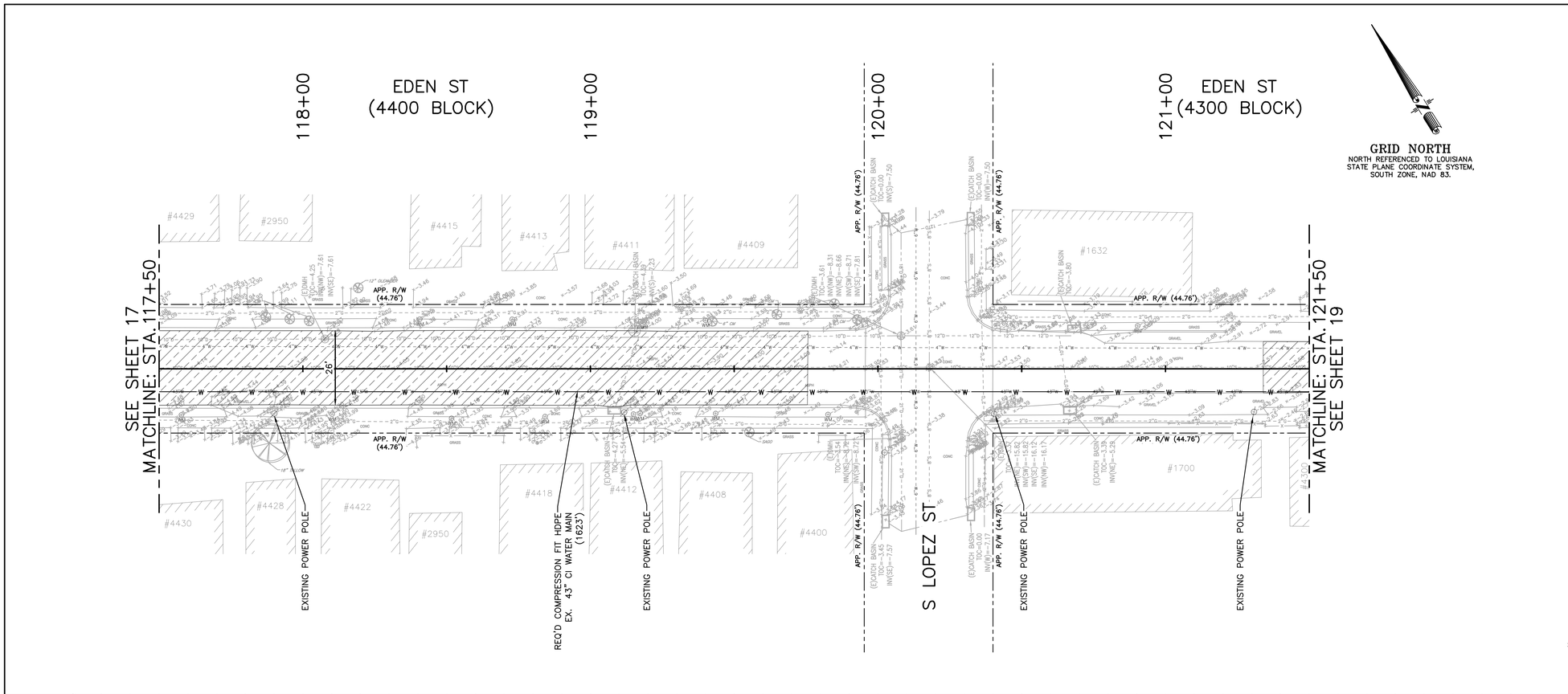
EDEN STREET (4500 BLOCK)

PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile
LAYOUT TAB: 17
DATE of PLOT: Friday, November 05, 2021 @ 9:49am

PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE

NOTES:

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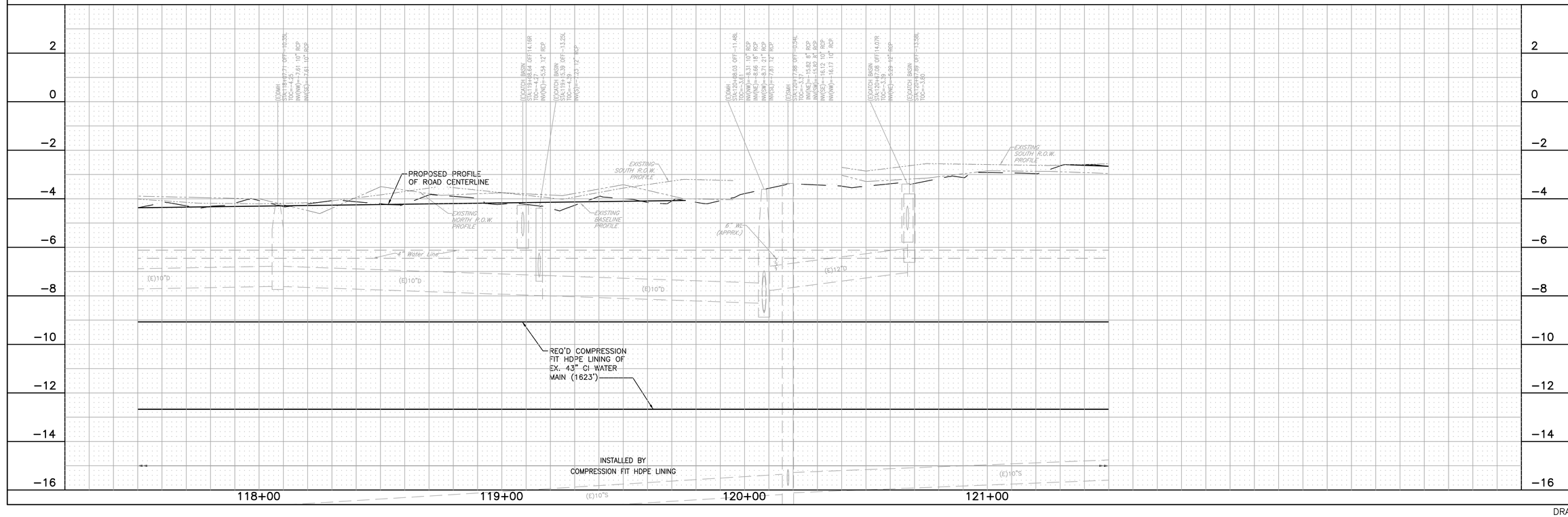
4. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146-448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SCALE 1" = 20'-0" HORIZ.
1" = 2'-0" VERT.



SHEET NUMBER
18 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

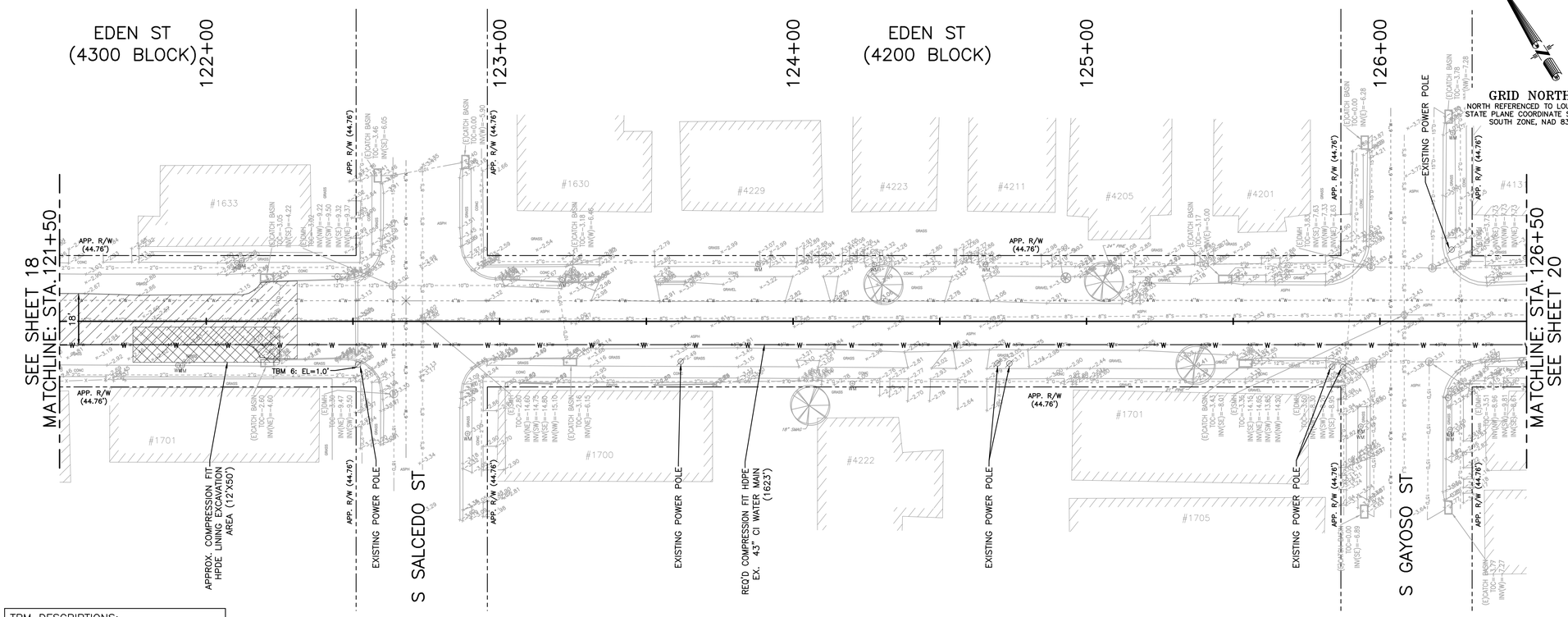
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	18
CHECKED	FTL/AKW		

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005
EDEN STREET (4300-4400 BLOCK)
PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DRAWING NO. 8962_W

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile LAYOUT TAB: 18 DATE of PLOT: Friday, November 05, 2021 @ 9:50am



TBM DESCRIPTIONS:

TBM 6: MAG NAIL SET AT EL=+1.00' IN WEST POWER POLE AT THE INTERSECTION OF GRAPE ST. & S SALCEDO ST.

LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE

NOTES:

1. ELEVATION OF UTILITIES ARE APPROXIMATE BASED ON INFORMATION PROVIDED FROM S&WB. CONTRACTOR TO PERFORM EXPLORATORY EXCAVATION PRIOR TO CONSTRUCTION OF TRANSMISSION MAIN.
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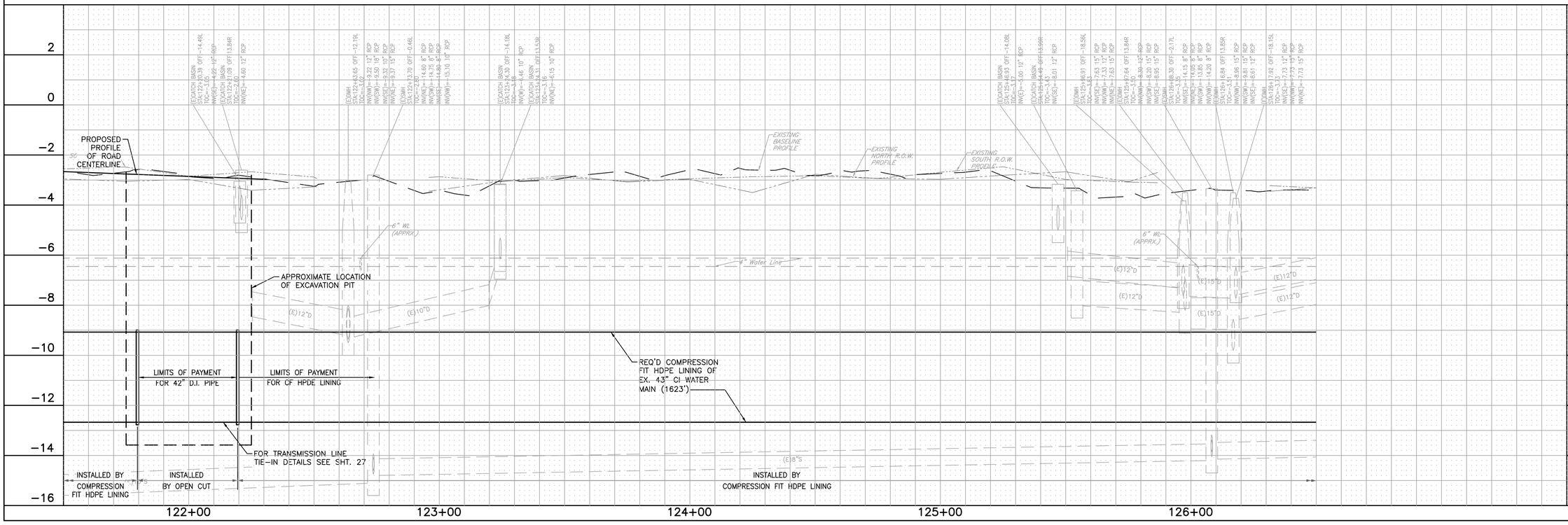
4. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146–448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SCALE 1" = 20'–0" HORIZ.
1" = 2'–0" VERT.



SHEET NUMBER
19 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERING, SURVEYING, MAPPING, GIS, GPS, PHOTOGRAMMETRY & ORTHOPHOTO

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

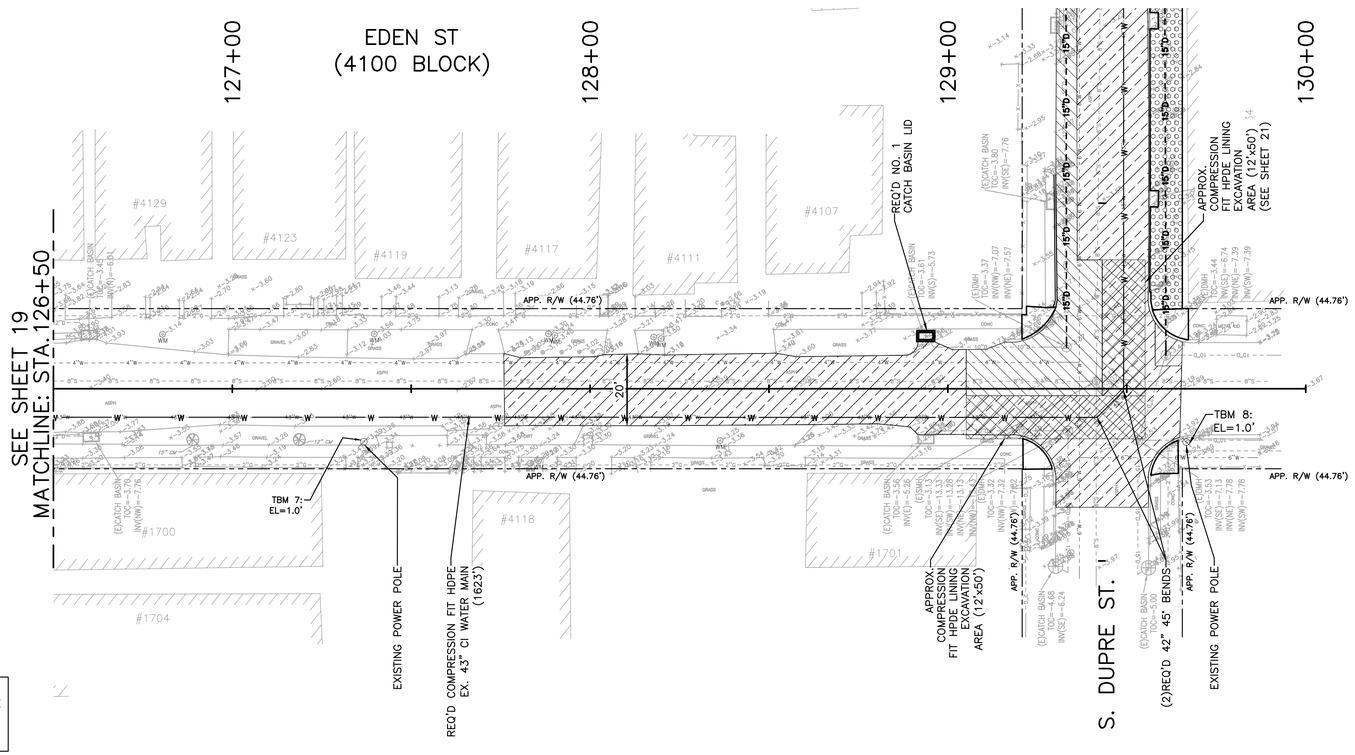
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	19
CHECKED	FTL/AKW		

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

EDEN STREET (4200–4300 BLOCK)

PLAN AND PROFILE

DWG PATH: S:\(660) NOSWB\60-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile
LAYOUT TAB: 19
DATE of PLOT: Friday, November 05, 2021 @ 9:50am



TBM DESCRIPTIONS:

TBM 7: MAG NAIL SET AT EL=+1.00' IN SOUTHWEST POWER POLE AT NEAR STA:127+35 GRAPE ST.

TBM 8: MAG NAIL SET AT EL=+1.00' IN SOUTH POWER POLE AT THE INTERSECTION OF GRAPE ST. & S DUPRE ST.

GRID NORTH
NORTH REFERENCED TO LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83.

LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
- REQUIRED 8" VALVE
- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE

NOTES:

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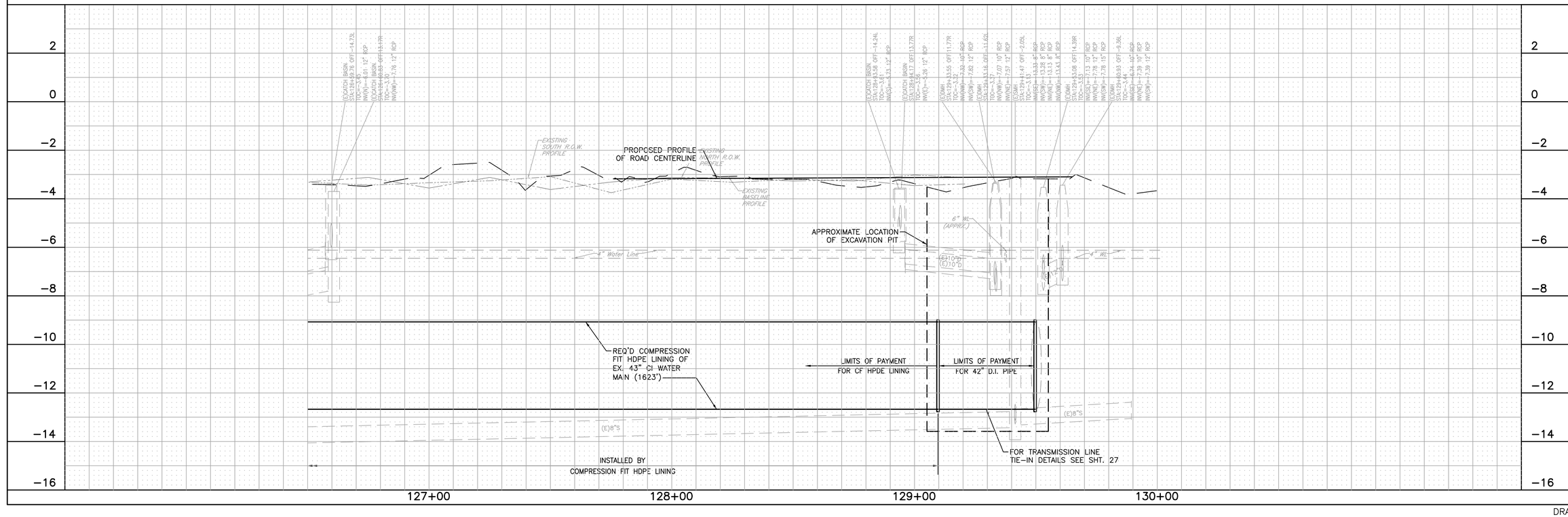
4. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146–448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SCALE 1" = 20'–0" HORIZ.
1" = 2'–0" VERT.



SHEET NUMBER
20 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL & ENVIRONMENTAL ENGINEERS
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	20
CHECKED	FTL/AKW		

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

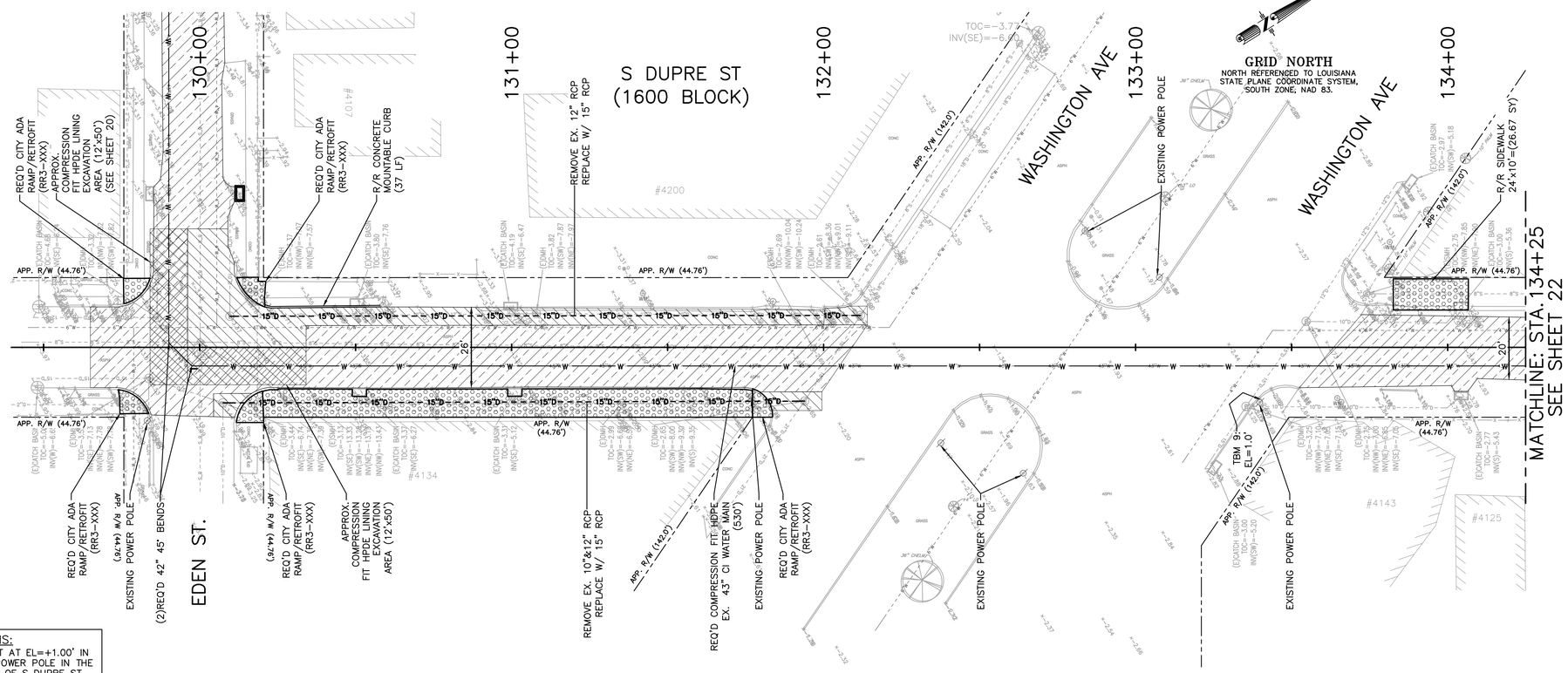
EDEN STREET (4100 BLOCK)

PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\60-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile LAYOUT TAB: 20 DATE of PLOT: Friday, November 05, 2021 @ 9:50am

PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
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- REMOVE EXIST. DRAINLINE

NOTES:

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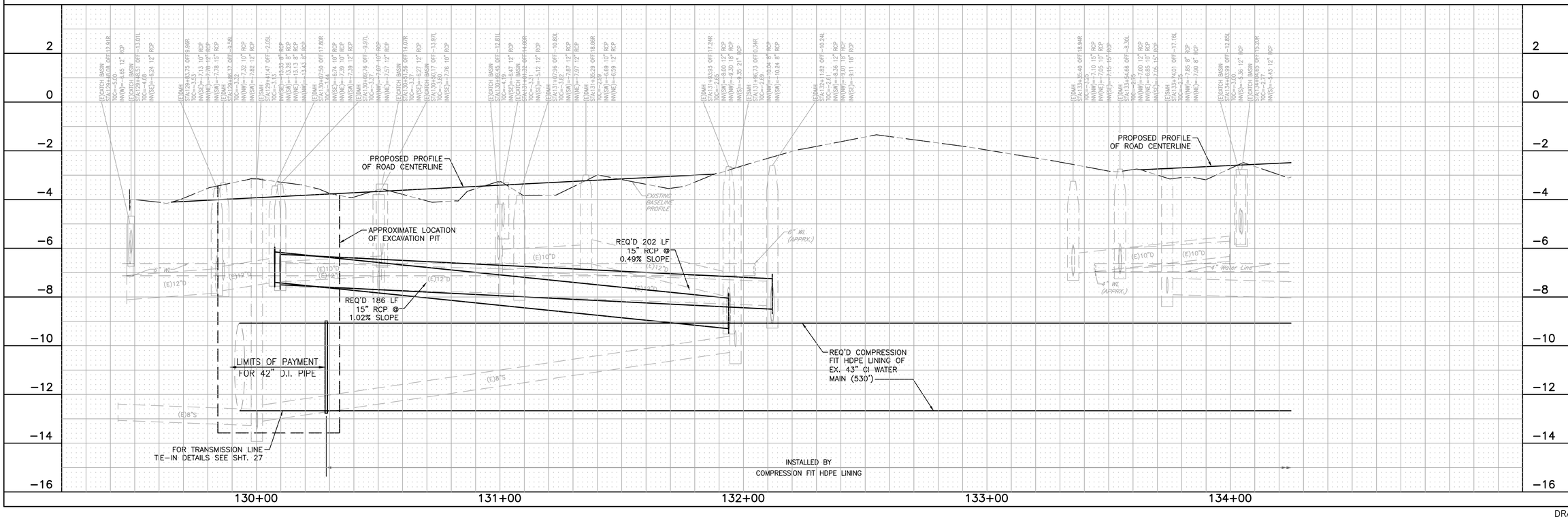
4. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146–448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SCALE 1" = 20'–0" HORIZ.
1" = 2'–0" VERT.

TBM DESCRIPTIONS:

TBM 9: MAG NAIL SET AT EL=+1.00' IN NORTHEAST POWER POLE IN THE INTERSECTION OF S DUPRE ST. & WASHINGTON AVE.



NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

SHEET NUMBER
21 of 27

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	21
CHECKED	FTL/AKW		

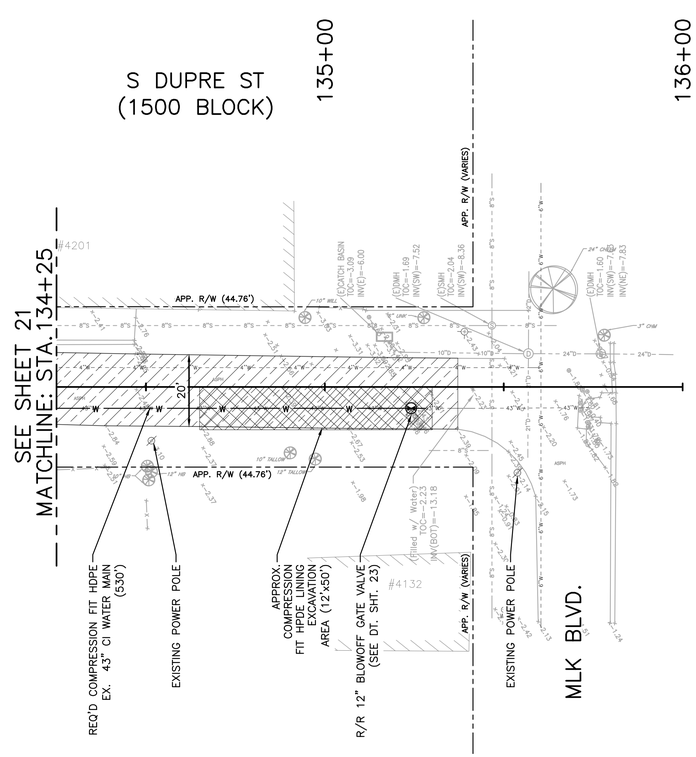
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

S. DUPRE STREET (1600 BLOCK)

PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_14-22_Plan_Profile
LAYOUT TAB: 21
DATE of PLOT: Friday, November 05, 2021 @ 9:51am



GRID NORTH
NORTH REFERENCED TO LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83.

LEGEND:

- REQUIRED ASPHALT ROADWAY SWBNO (ANSI 131)
- REQUIRED COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- APPROX. LOCATION OF PIPE LAYDOWN AREA
- APPROX. LOCATION OF EXCAVATION AREA
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP SWBNO (TRIANG)
- REQUIRED CONCRETE PAVEMENT, SIDWALK OR ADA RAMP CNO DPW (HEX)
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- REQUIRED WATER TEE
- PROPOSED FIRE HYDRANT (PFH)
- REMOVE EXIST. DRAINLINE

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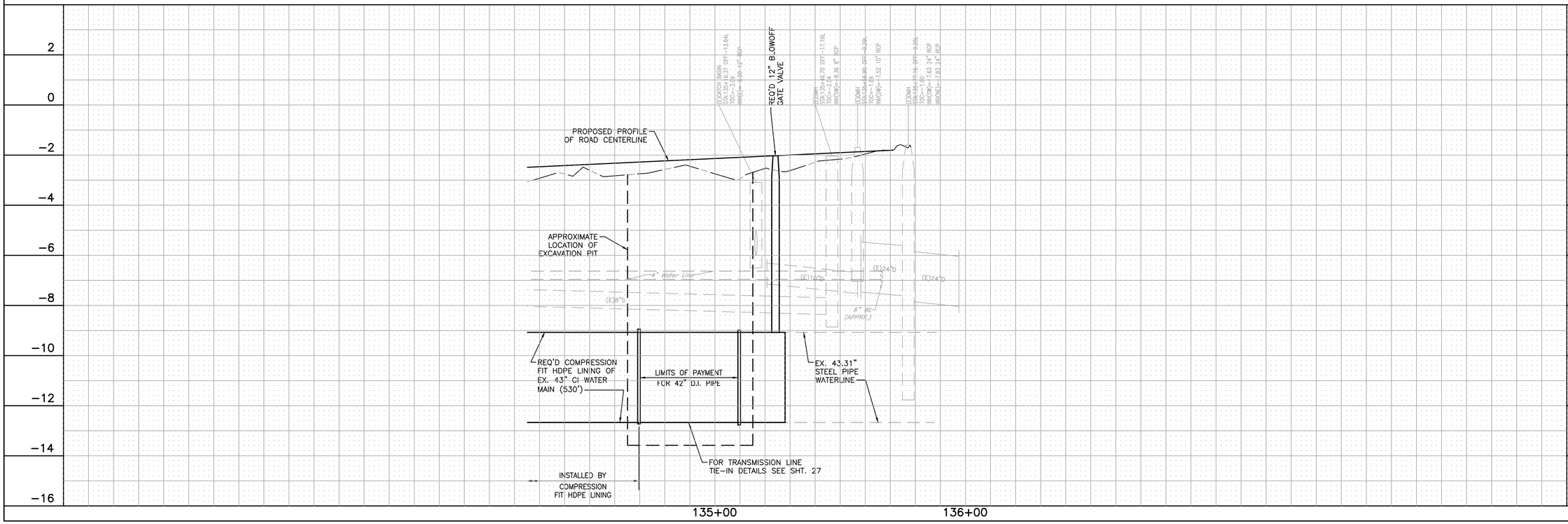
4. CONCRETE AND ASPHALT PAVEMENT RESTORATION SHALL BE IN COMPLIANCE WITH SECTIONS 146–448, 450 & 451 OF THE CITY CODE.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37236
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER
10-8-2021

20 0 10 20 40 80
SCALE 1" = 20'–0" HORIZ.
1" = 2'–0" VERT.



SHEET NUMBER
22 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11–9–21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
527 W. ESPLANADE AVE., STE. 200
KENNER, LOUISIANA 70065
PHONE: 504.466.1414

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	22

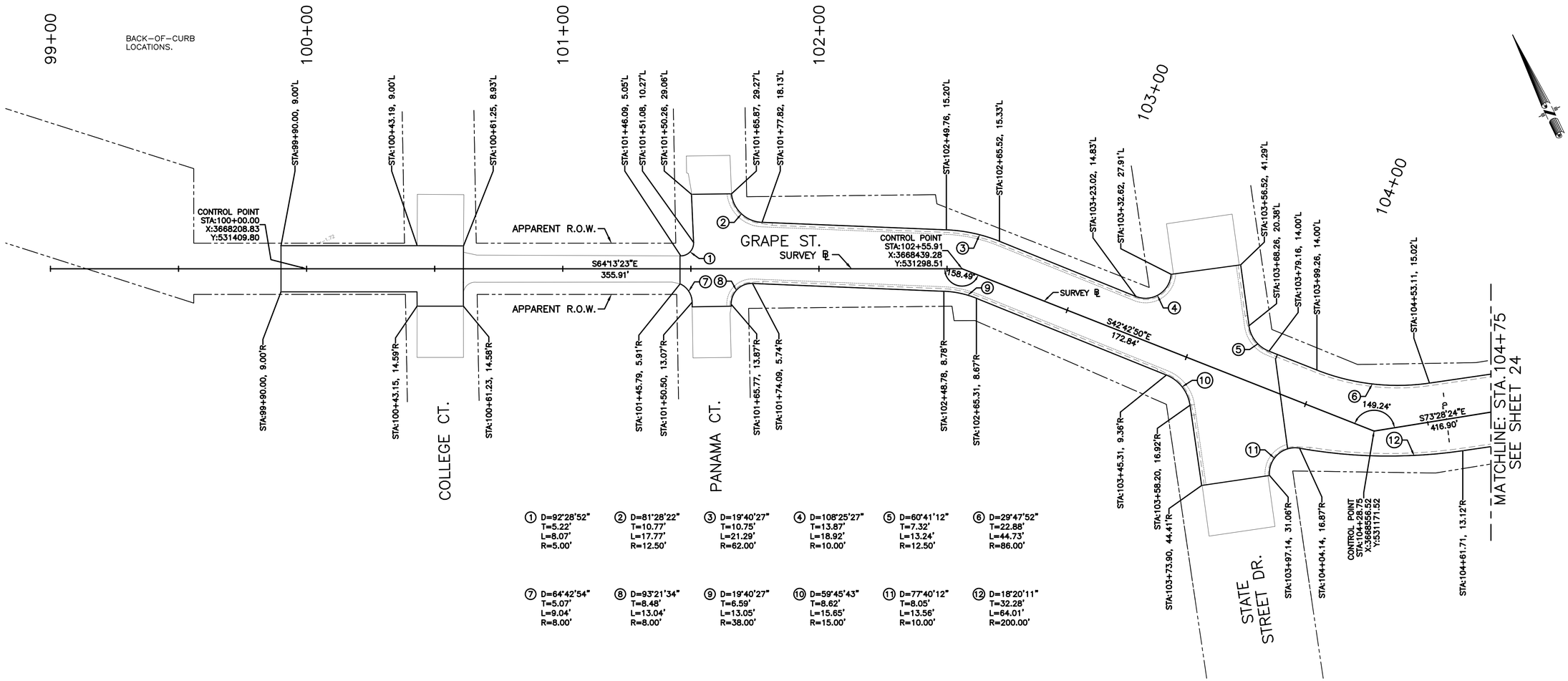
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM–005

S. DUPRE STREET (1500 BLOCK)

PLAN AND PROFILE

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\60–0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660–0300.01_14–22_Plan_Profile LAYOUT TAB: 22 DATE of PLOT: Friday, November 05, 2021 @ 9:51am



① D=92°28'52" T=5.22' L=8.07' R=5.00'	② D=81°28'22" T=10.77' L=17.77' R=12.50'	③ D=19°40'27" T=10.75' L=21.29' R=62.00'	④ D=108°25'27" T=13.87' L=18.92' R=10.00'	⑤ D=60°41'12" T=7.32' L=13.24' R=12.50'	⑥ D=29°47'52" T=22.88' L=44.73' R=86.00'
⑦ D=64°42'54" T=5.07' L=9.04' R=8.00'	⑧ D=93°21'34" T=8.48' L=13.04' R=8.00'	⑨ D=19°40'27" T=6.59' L=13.05' R=38.00'	⑩ D=59°45'43" T=8.62' L=15.65' R=15.00'	⑪ D=77°40'12" T=8.05' L=13.56' R=10.00'	⑫ D=18°20'11" T=32.28' L=64.01' R=200.00'

NOTE:
ALL STATIONING AND OFFSETS ARE REFERENCED FROM THE SURVEYED BASELINE AND ARE AT THE BACK-OF-CURB LOCATIONS.

STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
23 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGINEERING
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.466.9191 FAX: 504.466.9192

DIGITAL ENGINEERING & IMAGINEERING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	23

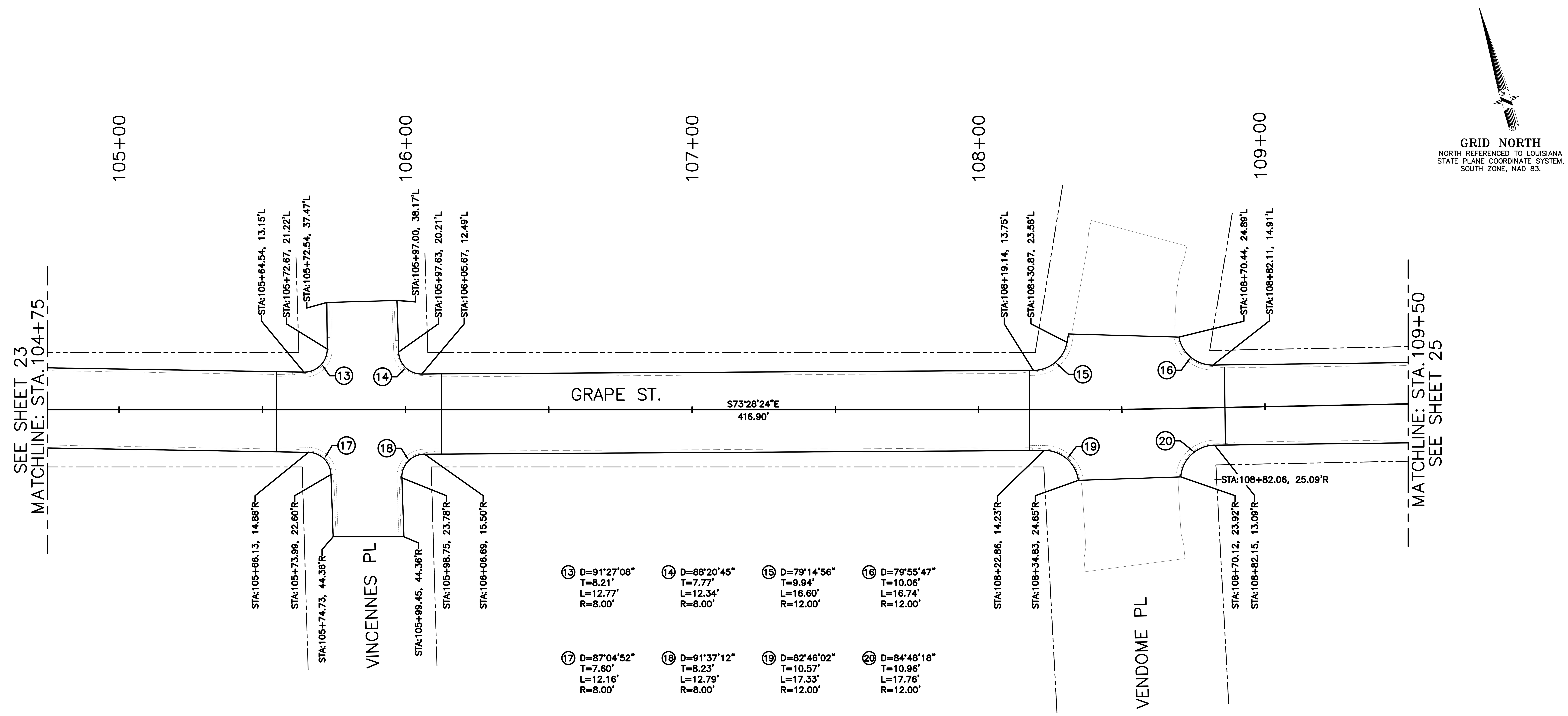
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GEOMETRIC LAYOUT SHEET

DEPARTMENT OF PUBLIC WORKS

DRAWING NO. 8962_W

DRAWING NO. 8962_W



NOTE:
ALL STATIONING AND OFFSETS ARE REFERENCED FROM THE SURVEYED BASELINE AND ARE AT THE BACK-OF-CURB LOCATIONS.

ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER 24 of 27

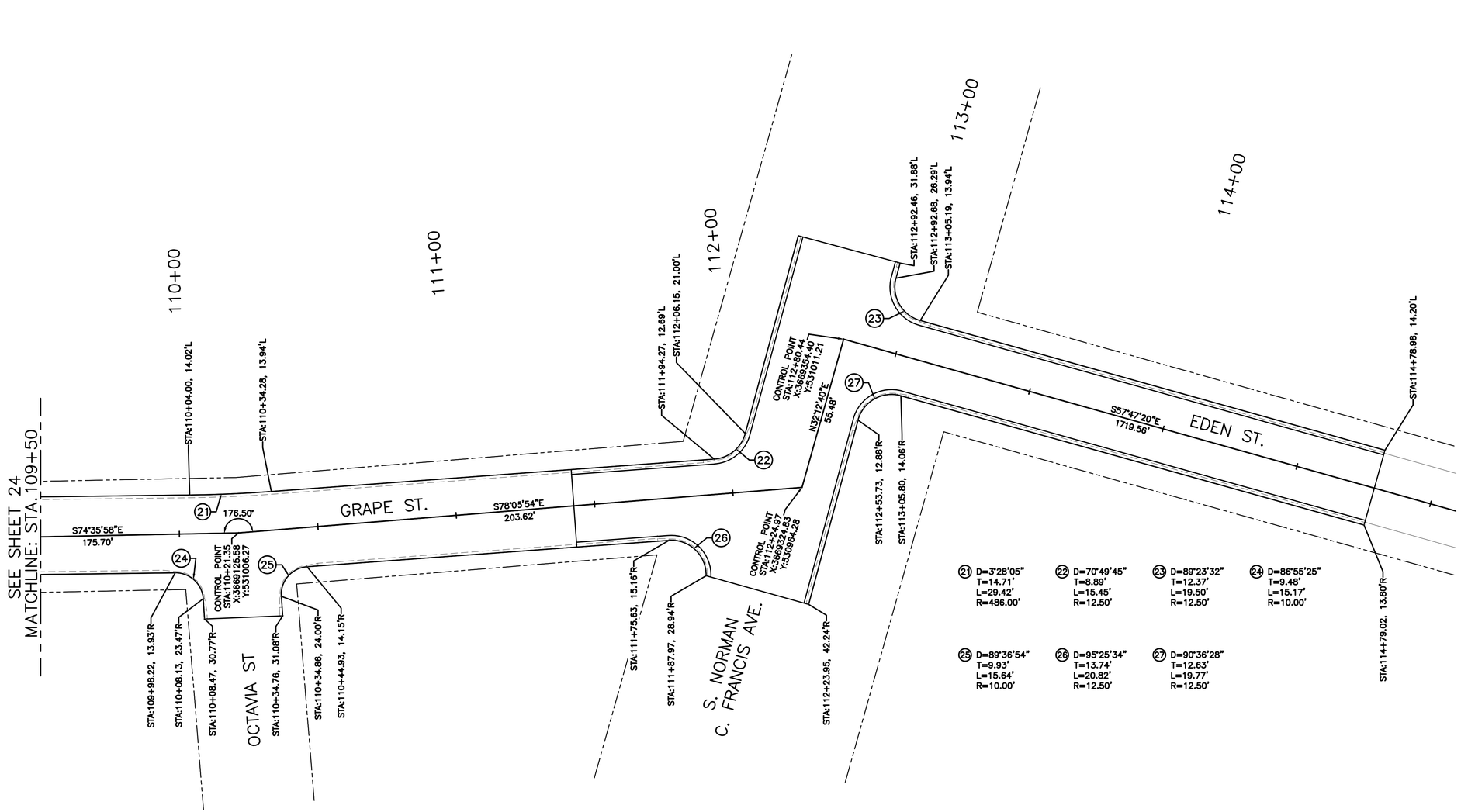
NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	24
CHECKED	FTL/AKW		

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GEOMETRIC LAYOUT SHEET



NOTE:
ALL STATIONING AND OFFSETS ARE REFERENCED FROM THE SURVEYED BASELINE AND ARE AT THE BACK-OF-CURB LOCATIONS.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
25 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.466.8221 FAX: 504.466.8225

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

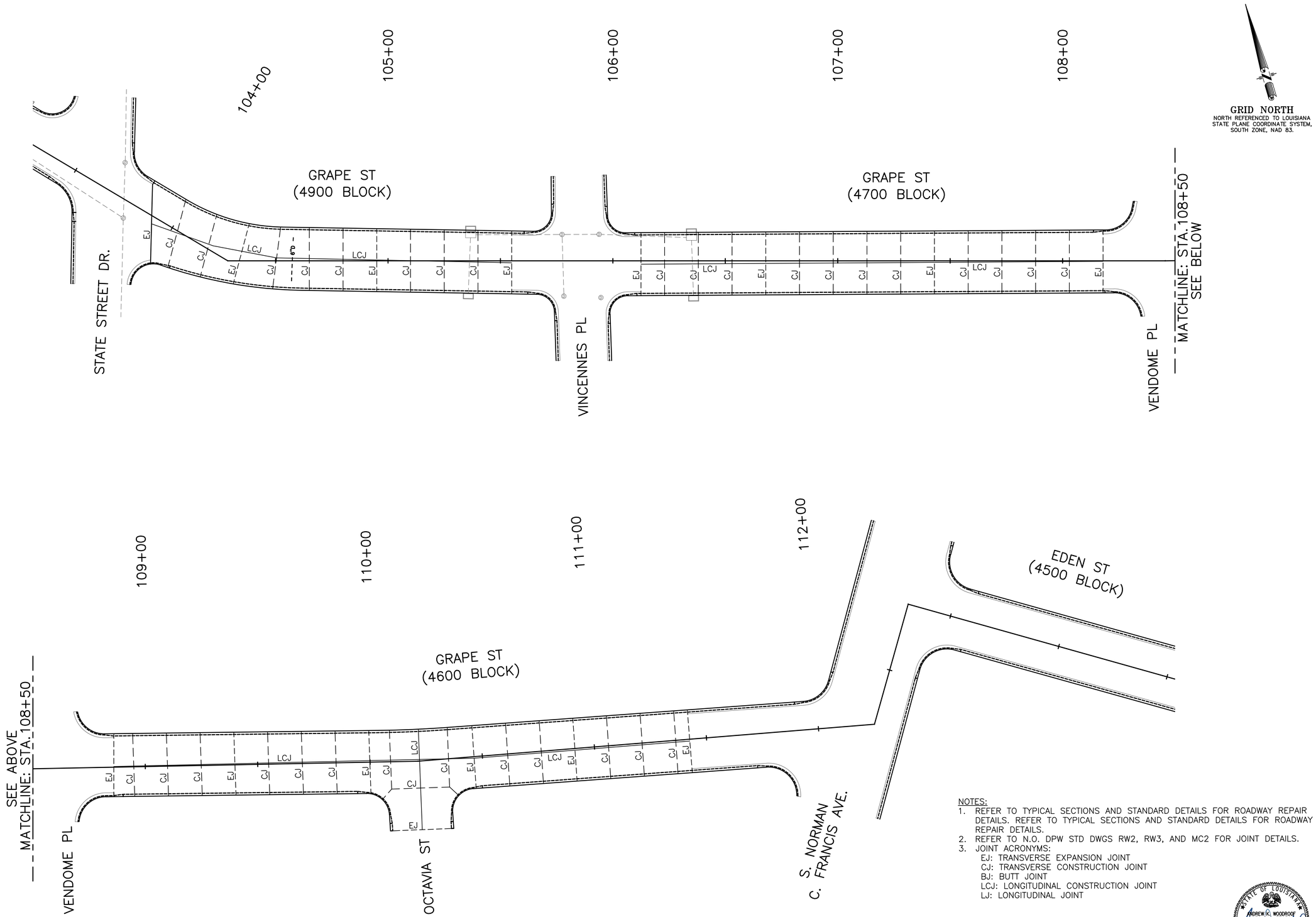
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	25

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

GEOMETRIC LAYOUT SHEET

DWG PATH: S:_660_\NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_23-25_Geometric Plan LAYOUT TAB: 25 DATE of PLOT: Friday, November 05, 2021 @ 9:51am

DRAWING NO. 8962_W



NOTES:
1. REFER TO TYPICAL SECTIONS AND STANDARD DETAILS FOR ROADWAY REPAIR DETAILS. REFER TO TYPICAL SECTIONS AND STANDARD DETAILS FOR ROADWAY REPAIR DETAILS.
2. REFER TO N.O. DPW STD DWGS RW2, RW3, AND MC2 FOR JOINT DETAILS.
3. JOINT ACRONYMS:
   EJ: TRANSVERSE EXPANSION JOINT
   CJ: TRANSVERSE CONSTRUCTION JOINT
   BJ: BUTT JOINT
   LCJ: LONGITUDINAL CONSTRUCTION JOINT
   LJ: LONGITUDINAL JOINT

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER
10-8-2021

SHEET NUMBER
26 of 27

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • LAND SURVEYORS
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.466.8221 • FAX: 504.466.8225

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

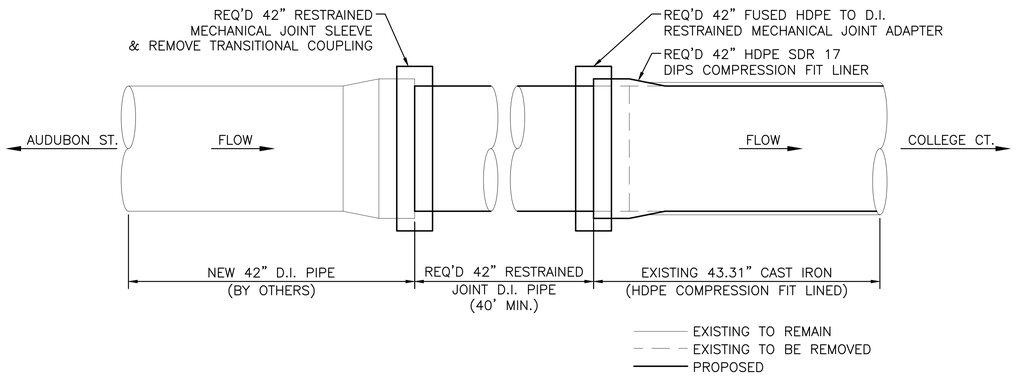
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	26

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

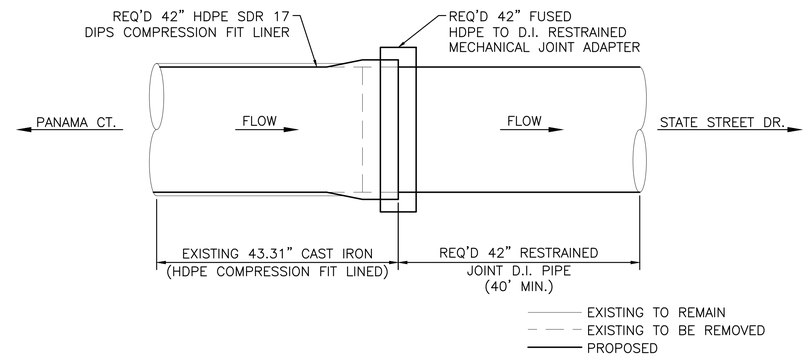
PAVEMENT JOINTING LAYOUT

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

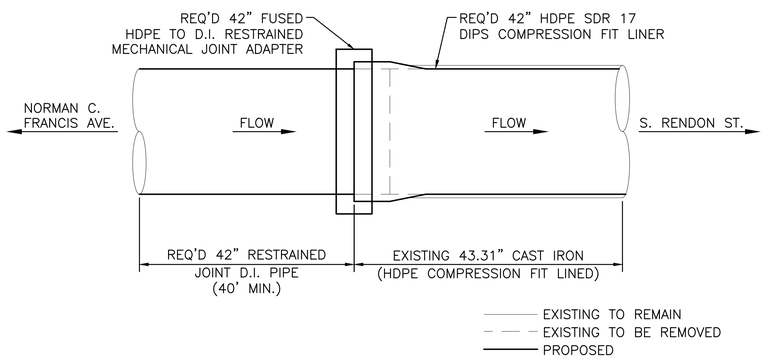
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_26_Jointing Layout LAYOUT TAB: 26 DATE of PLOT: Friday, November 05, 2021 @ 9:51am



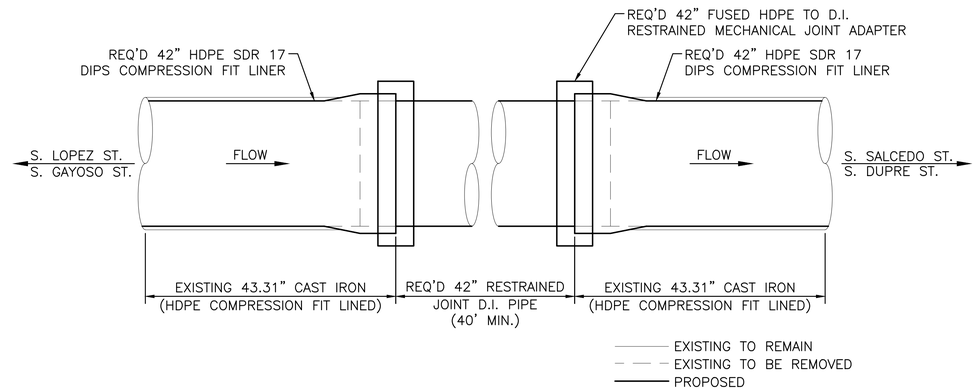
STA. 100+15.00 - FIG ST. @ COLLEGE CT.
TIE-IN DETAIL
SCALE: N.T.S.



STA. 102+29.16 - GRAPE ST. @ PANAMA CT.
TIE-IN DETAIL
SCALE: N.T.S.



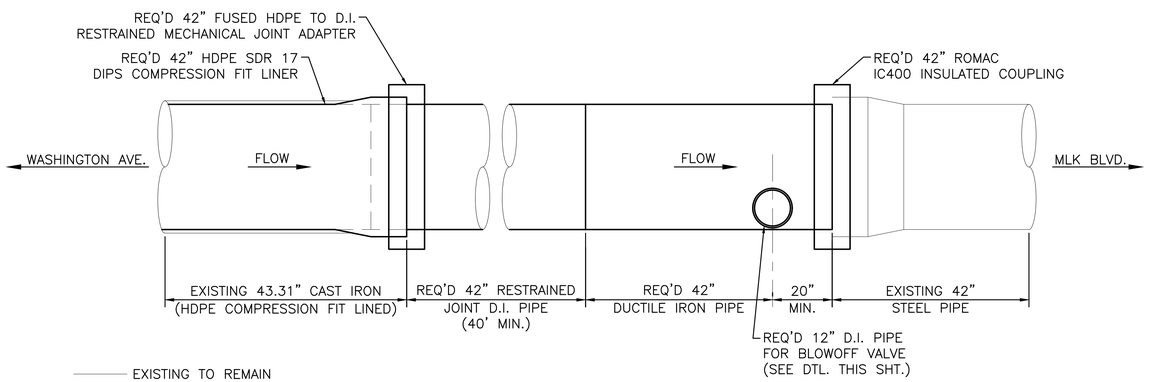
STA. 113+50.00 - EDEN ST. @ NORMAN C. FRANCIS AVE.
TIE-IN DETAIL
SCALE: N.T.S.



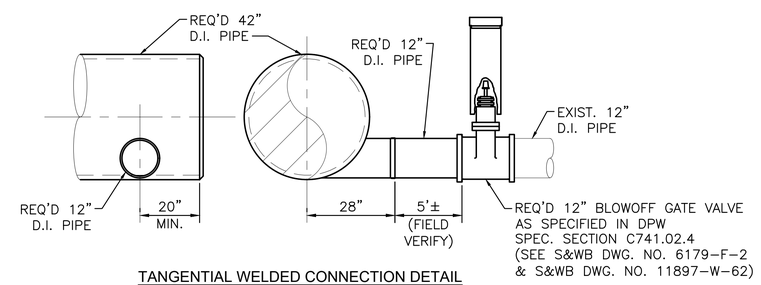
STA. 122+00.00 - EDEN ST. @ S. SALCEDO ST.
STA. 129+43.13 - EDEN ST. @ S. DUPRE ST.
TIE-IN DETAIL
SCALE: N.T.S.

RESTRAINED JOINTS			
SHEET REFERENCE	NOMINAL PIPE DIAMETER (IN)	DUCTILE IRON FITTING TYPE	MINIMUM RESTRAINED JOINT LENGTH ON EACH SIDE OF FITTING (FT)
14 & 20	42	45°	68
16	42	45°	93
17	42	45°	79

NOTES:
1. WATER PIPE JOINT RESTRAINT ARE DESIGNED FOR A WORKING PRESSURE OF 350 PSI PER THE DEPARTMENT OF PUBLIC WORKS CITY OF NEW ORLEANS GENERAL SPECIFICATIONS FOR STREET PAVING



STA. 134+97.50 - S. DUPRE ST. @ MLK BLVD.
TIE-IN DETAIL
SCALE: N.T.S.



TANGENTIAL WELDED CONNECTION DETAIL
SCALE: N.T.S.

STATE OF LOUISIANA
ANDREW R. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
10-8-2021

SHEET NUMBER
27 of 27

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
(504) 467-9693

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	27
CHECKED	FTL/AKW		

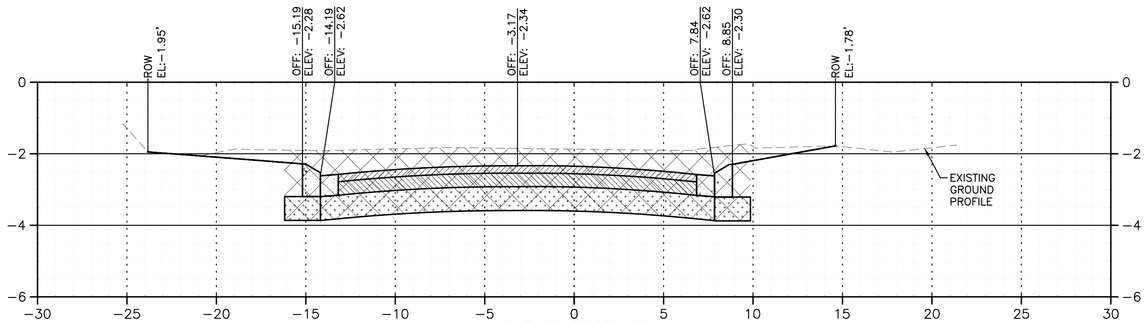
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

TYPICAL DETAILS

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_27_Typ Details LAYOUT TAB: 27 DATE of PLOT: Friday, November 05, 2021 @ 9:52am

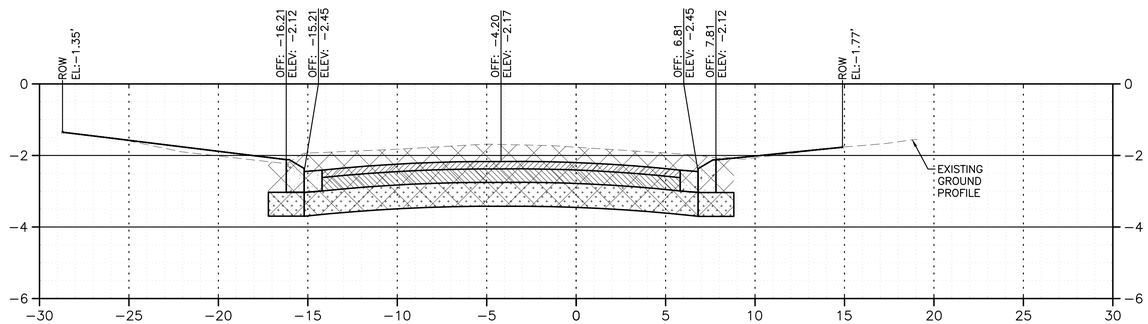
PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



SURVEY BASELINE
STA. 102+50

STREET CUT/FILL

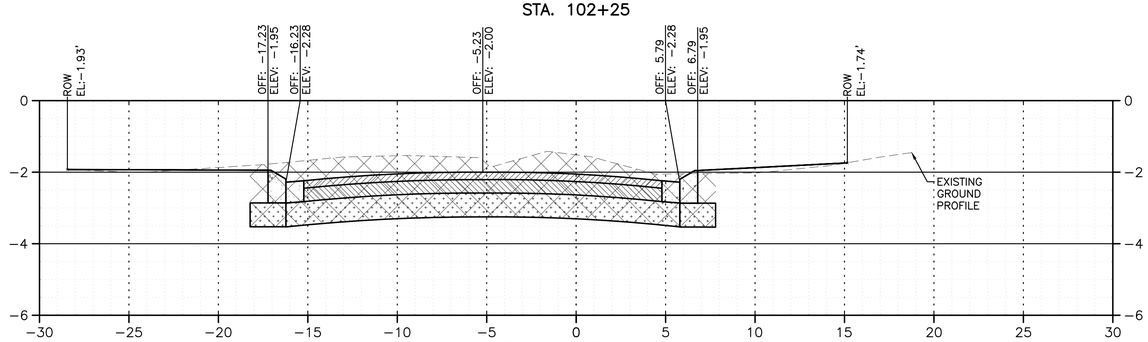
CUT: 43 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 102+25

STREET CUT/FILL

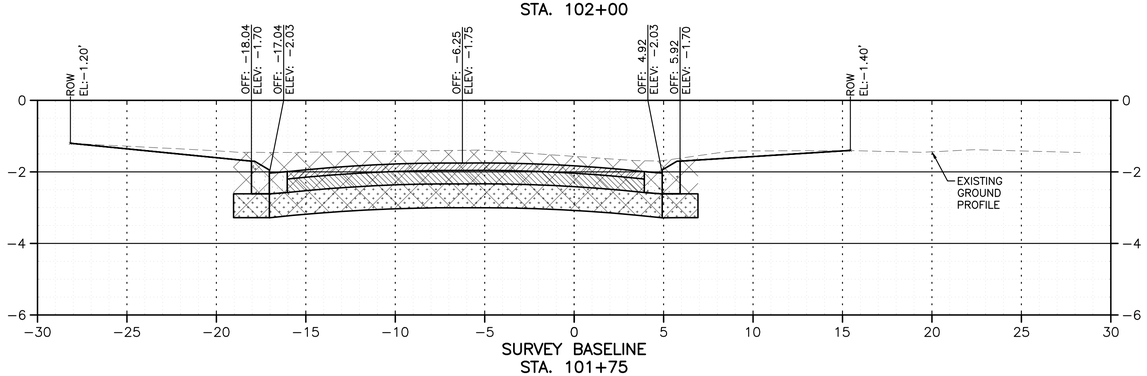
CUT: 41 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 102+00

STREET CUT/FILL

CUT: 40 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 101+75

STREET CUT/FILL

CUT: 36 CU. YDS.
FILL: 0 CU. YDS.

4 0 2 4 8 16
SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING
10-8-2021

SHEET NUMBER
101 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

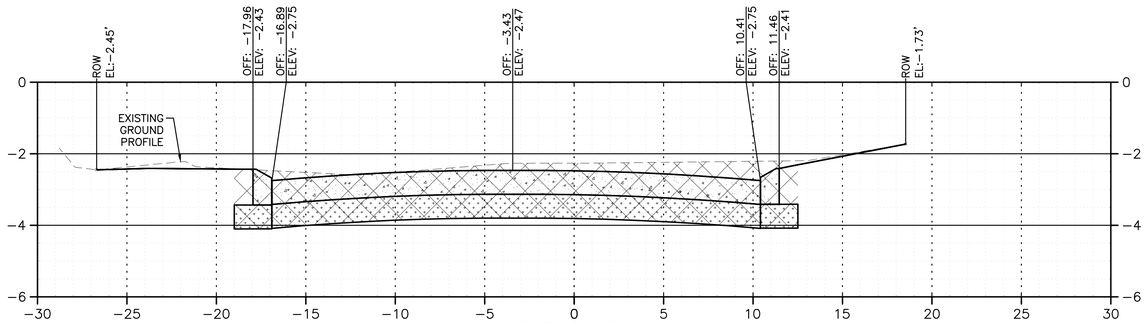
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	101

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

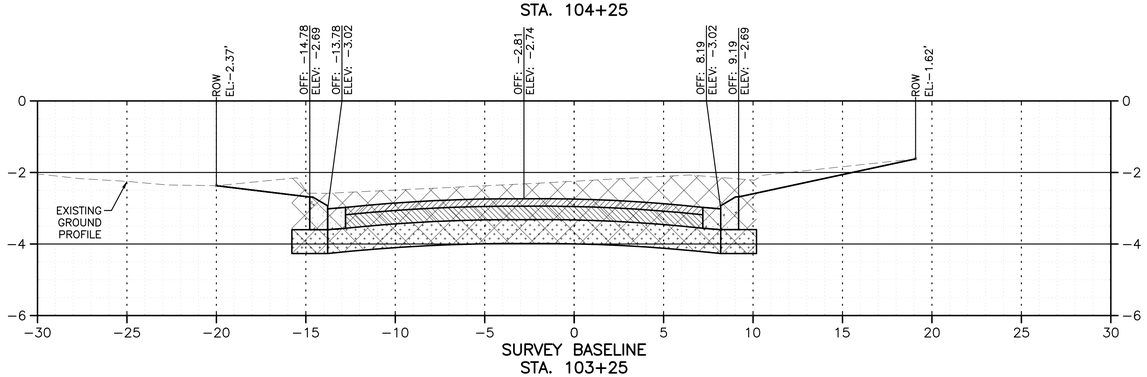
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 101 DATE of PLOT: Friday, November 05, 2021 @ 9:52am



STREET CUT/FILL

CUT: 51 CU. YDS.

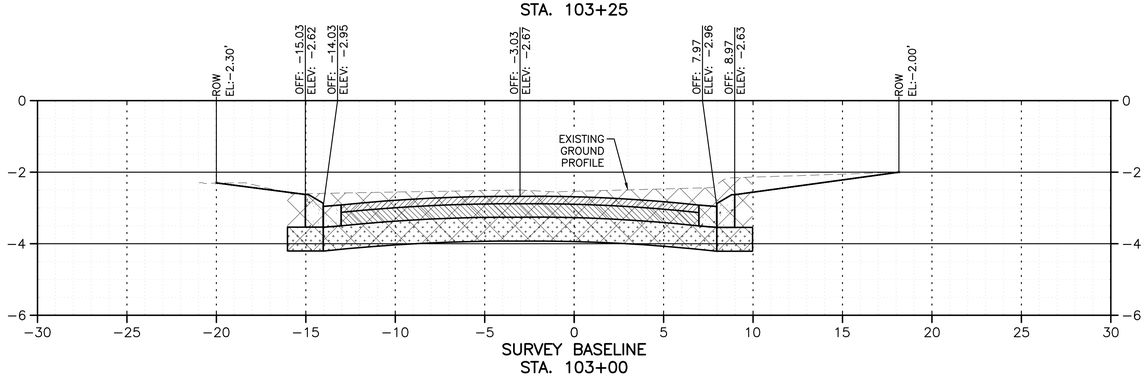
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 22 CU. YDS.

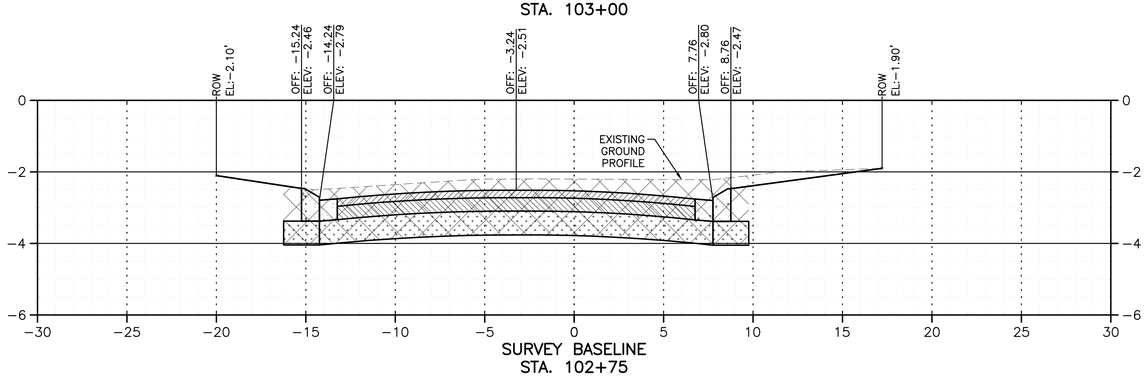
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 39 CU. YDS.

FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 44 CU. YDS.

FILL: 0 CU. YDS.

SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED
PROFESSIONAL ENGINEER
CIVIL
10-8-2021

SHEET NUMBER
102 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
5216 FRIELAND AVE., STE. 200
KENNER, LA 70065 PH: (504) 467-9693

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

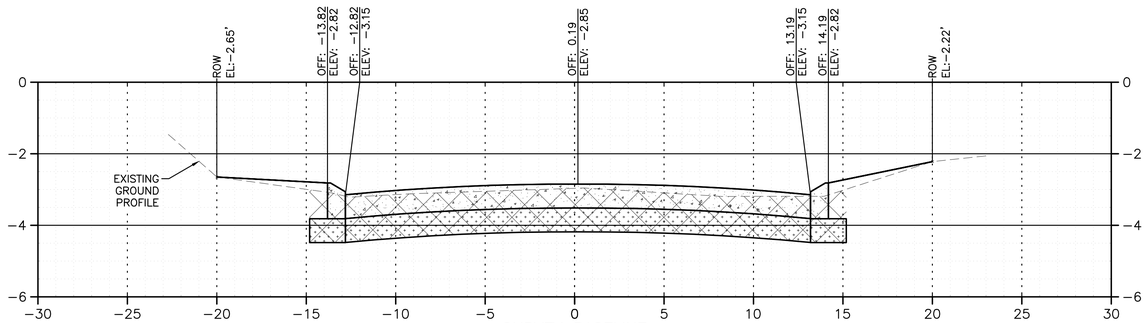
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	102

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

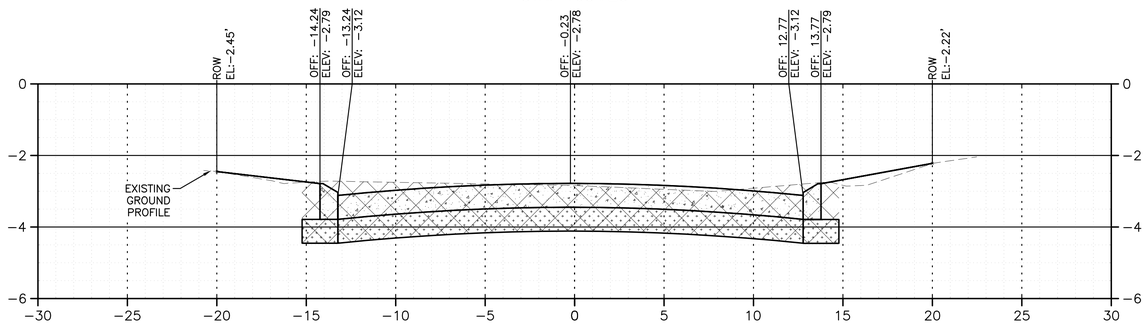
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu, TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 102 DATE of PLOT: Friday, November 05, 2021 @ 9:52am



STREET CUT/FILL

CUT: 37 CU. YDS.

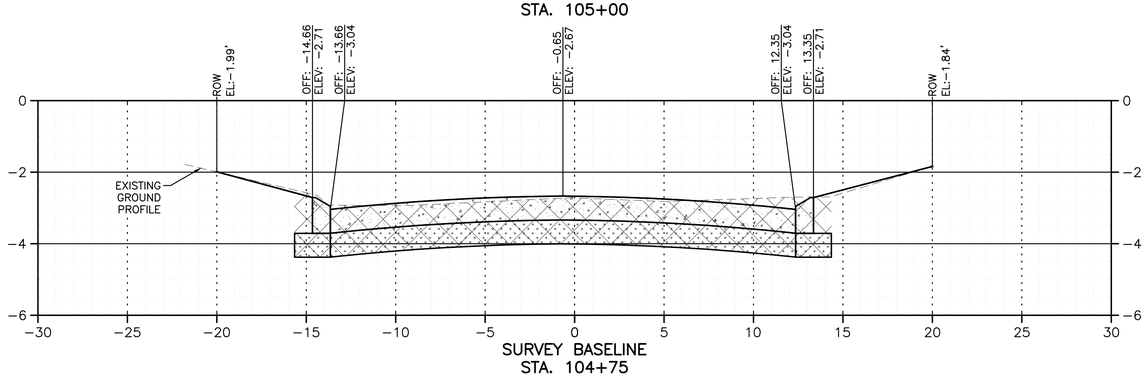
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 39 CU. YDS.

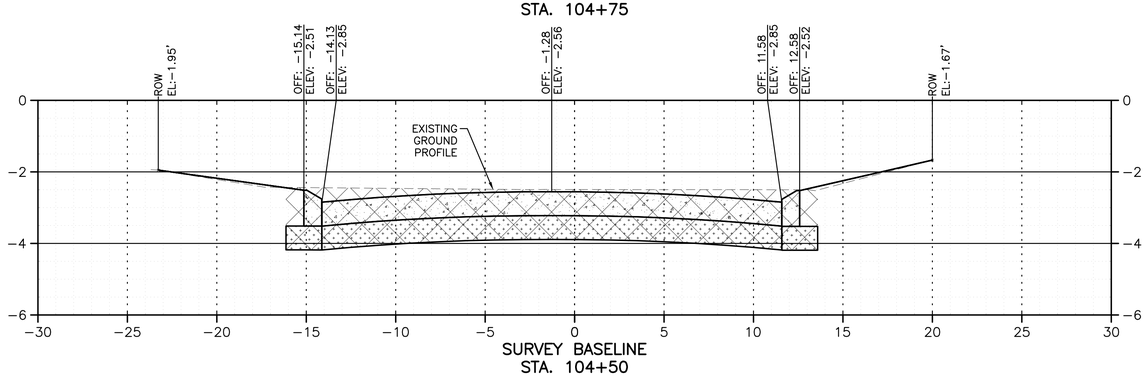
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 41 CU. YDS.

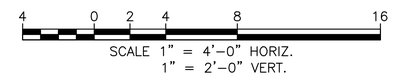
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 42 CU. YDS.

FILL: 0 CU. YDS.



SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CITY ENGINEER
10-8-2021

SHEET NUMBER
103 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
3216 N. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.305.0050 FAX: 504.305.0051

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	103

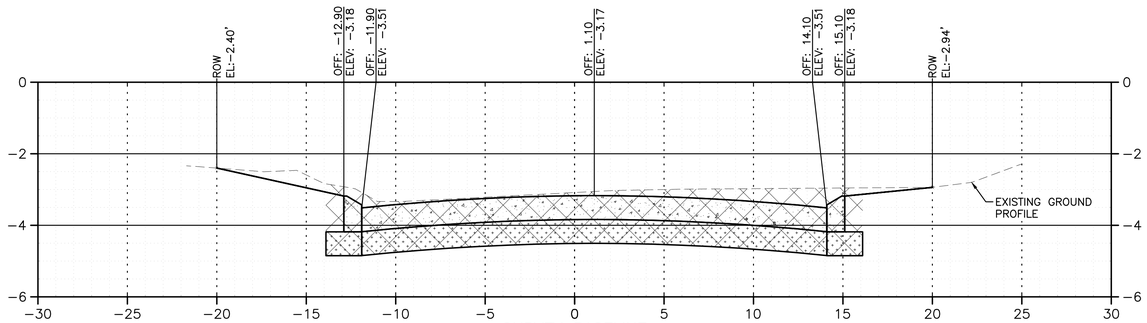
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 103 DATE of PLOT: Friday, November 05, 2021 @ 9:52am

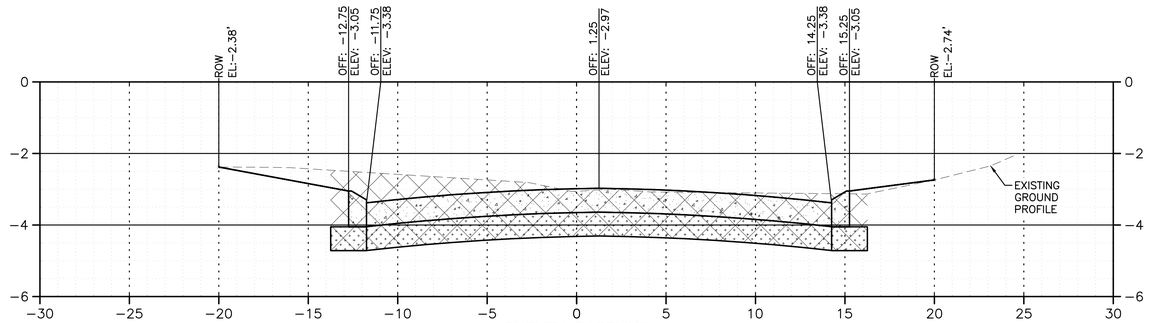
PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



SURVEY BASELINE
STA. 106+75

STREET CUT/FILL

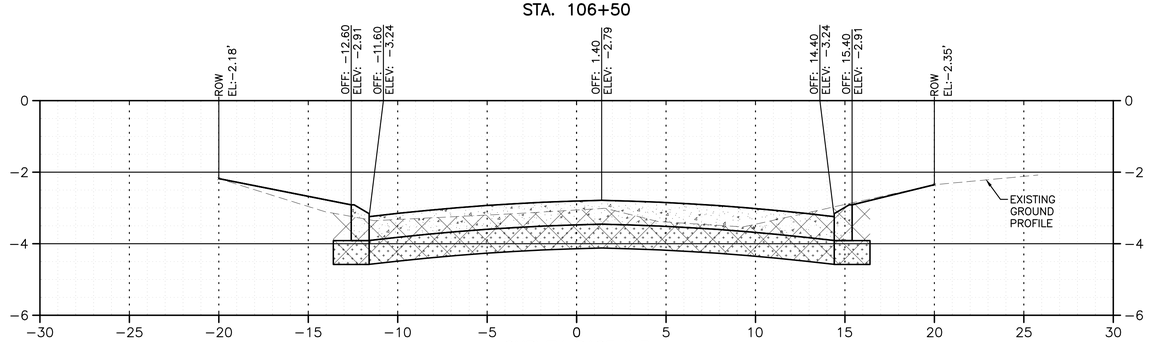
CUT: 44 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 106+50

STREET CUT/FILL

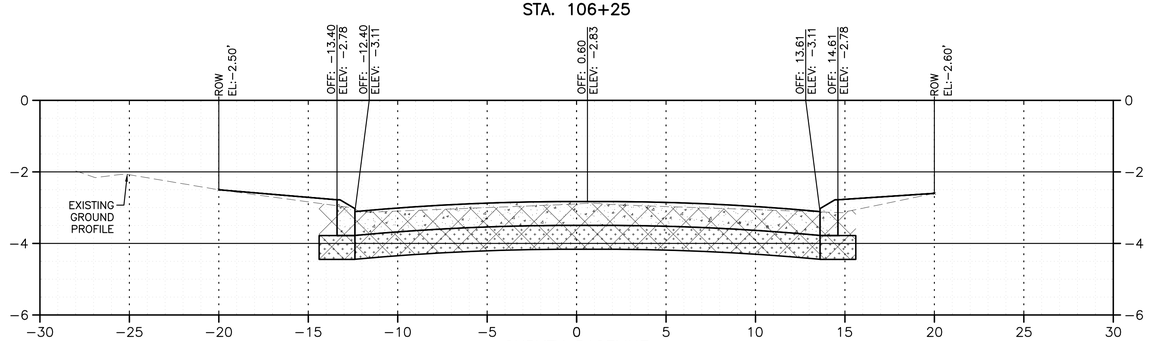
CUT: 38 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 106+25

STREET CUT/FILL

CUT: 32 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 105+50

STREET CUT/FILL

CUT: 35 CU. YDS.
FILL: 0 CU. YDS.

4 0 2 4 8 16
SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING
10-8-2021

SHEET NUMBER
104 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

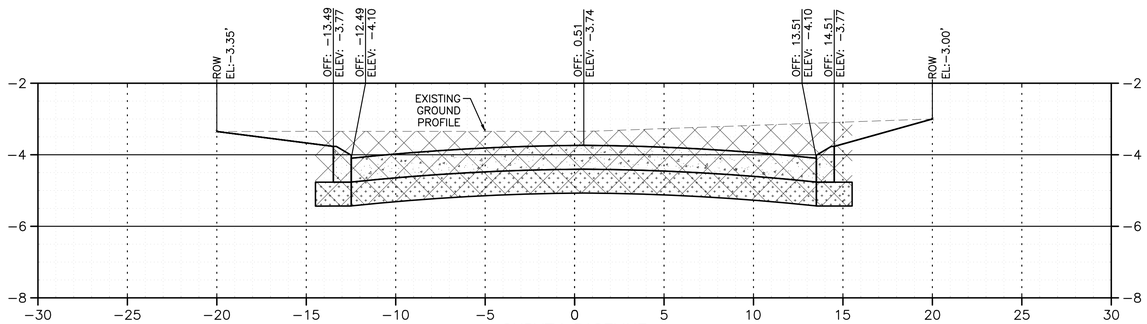
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	104

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

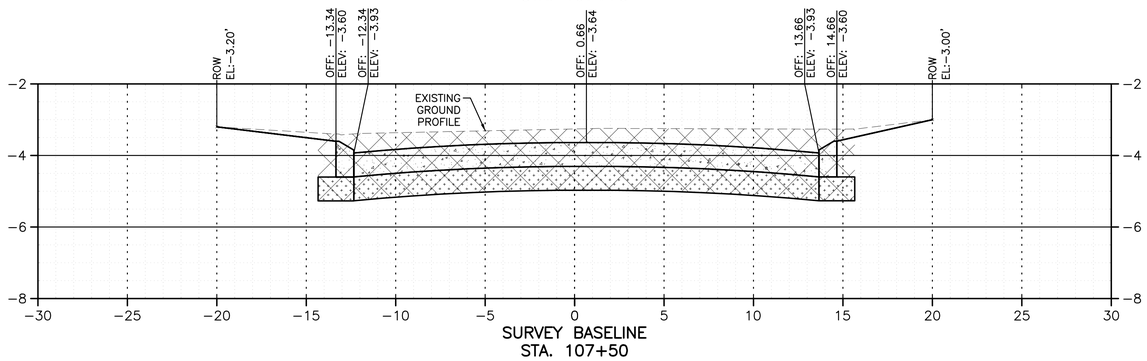
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 104 DATE of PLOT: Friday, November 05, 2021 @ 9:52am



STREET CUT/FILL

CUT: 53 CU. YDS.

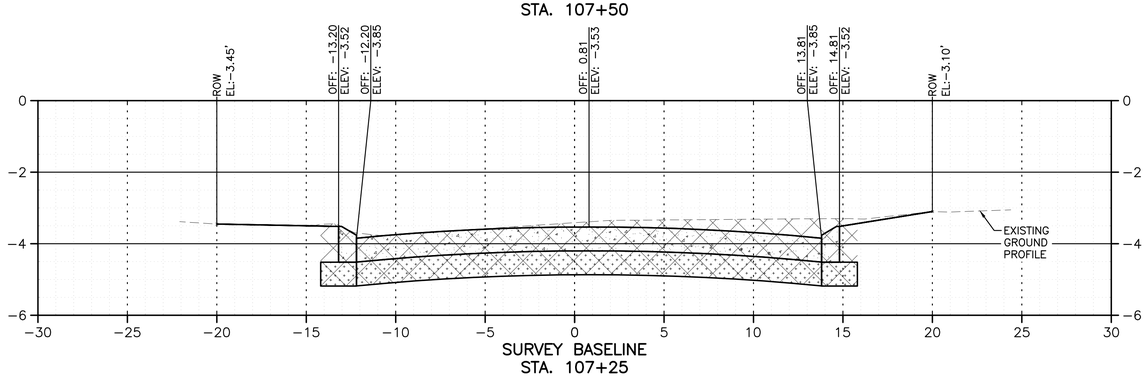
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 47 CU. YDS.

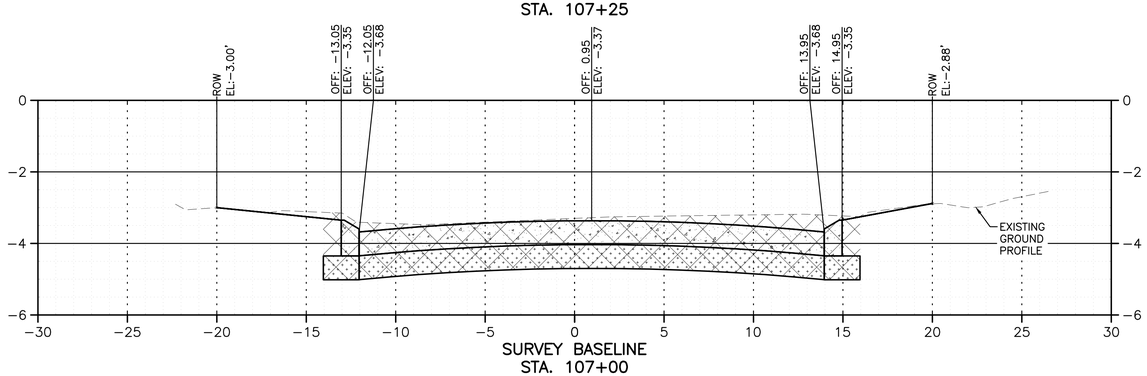
FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 43 CU. YDS.

FILL: 0 CU. YDS.



STREET CUT/FILL

CUT: 44 CU. YDS.

FILL: 0 CU. YDS.

SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED
PROFESSIONAL ENGINEER
CIVIL ENGINEER
10-8-2021

SHEET NUMBER
105 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
2021 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
PHONE: 504.466.8866 FAX: 504.466.8867

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

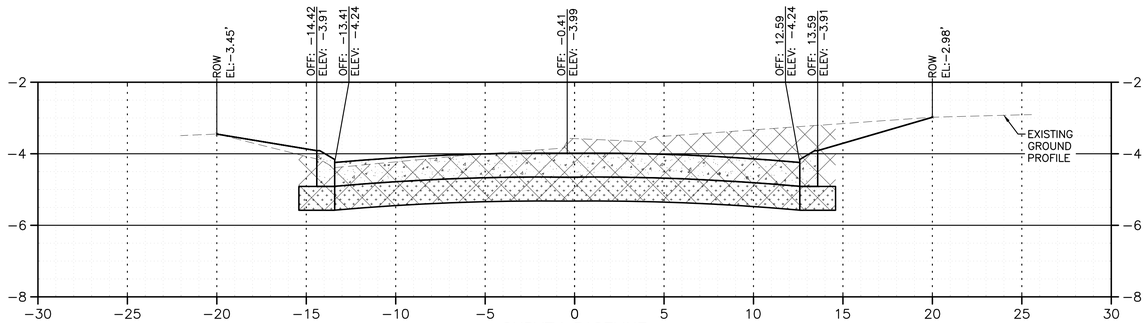
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	105

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu, TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 105 DATE of PLOT: Friday, November 05, 2021 @ 9:52am

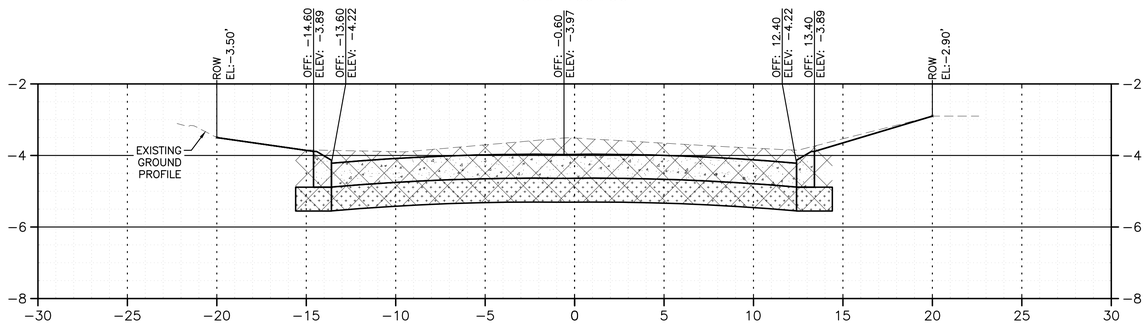


SURVEY BASELINE
STA. 109+50

STREET CUT/FILL

CUT: 47 CU. YDS.

FILL: 0 CU. YDS.

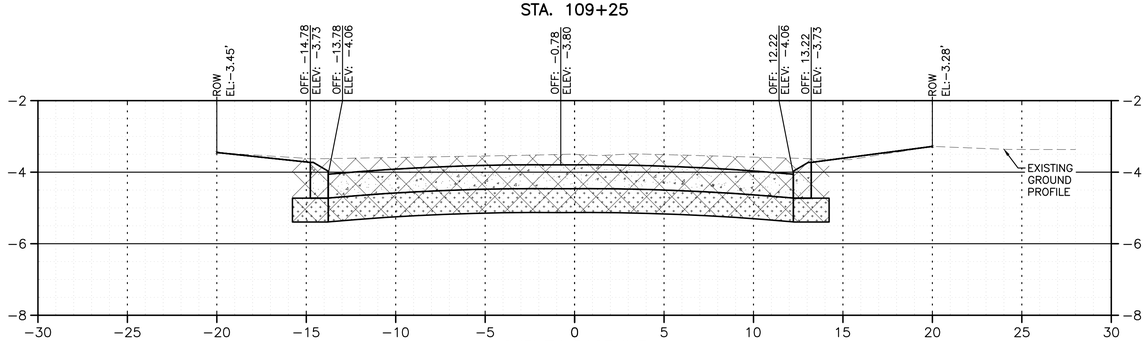


SURVEY BASELINE
STA. 109+25

STREET CUT/FILL

CUT: 47 CU. YDS.

FILL: 0 CU. YDS.

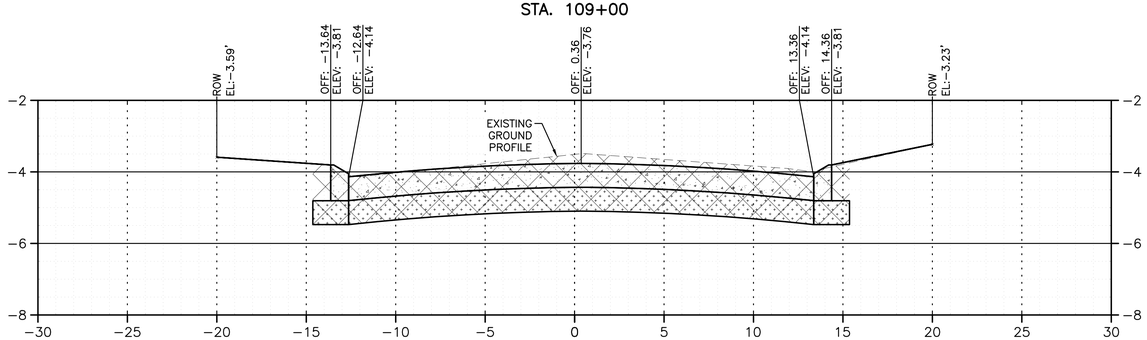


SURVEY BASELINE
STA. 109+00

STREET CUT/FILL

CUT: 40 CU. YDS.

FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 108+00

STREET CUT/FILL

CUT: 48 CU. YDS.

FILL: 0 CU. YDS.

4 0 2 4 8 16

SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED
PROFESSIONAL ENGINEER
CIVIL ENGINEER

10-8-2021

SHEET NUMBER
106 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
3217 W. ESPLANADE AVE., STE. 200
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PHONE: 504.466.9160 • FAX: 504.466.9161

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	106

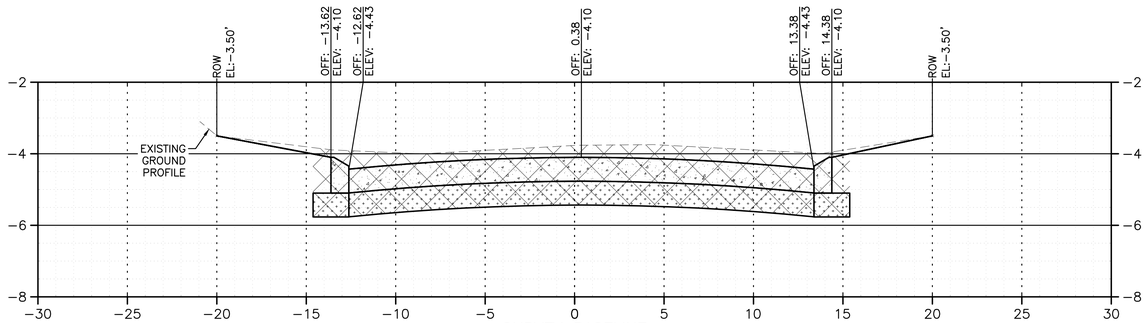
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu, TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 106 DATE of PLOT: Friday, November 05, 2021 @ 9:53am

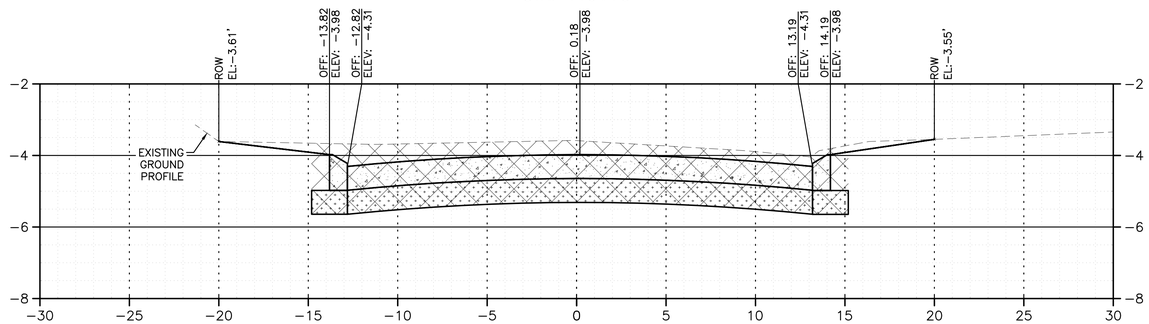
PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



SURVEY BASELINE
STA. 110+75

STREET CUT/FILL

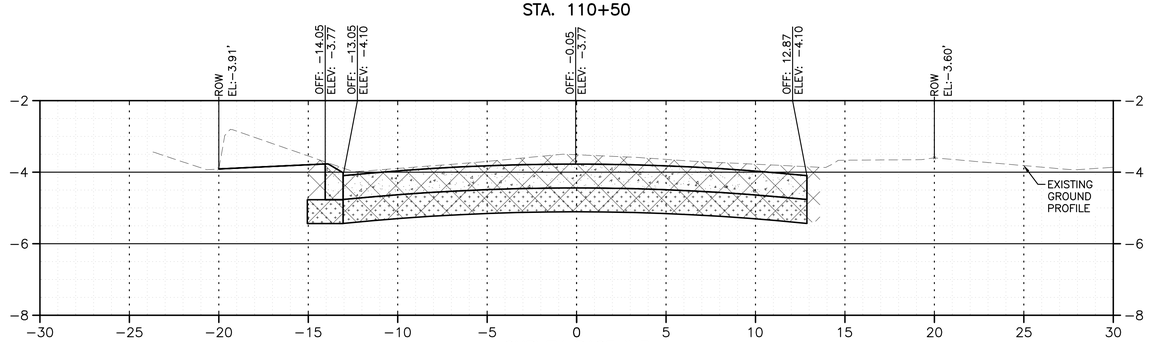
CUT: 48 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 110+50

STREET CUT/FILL

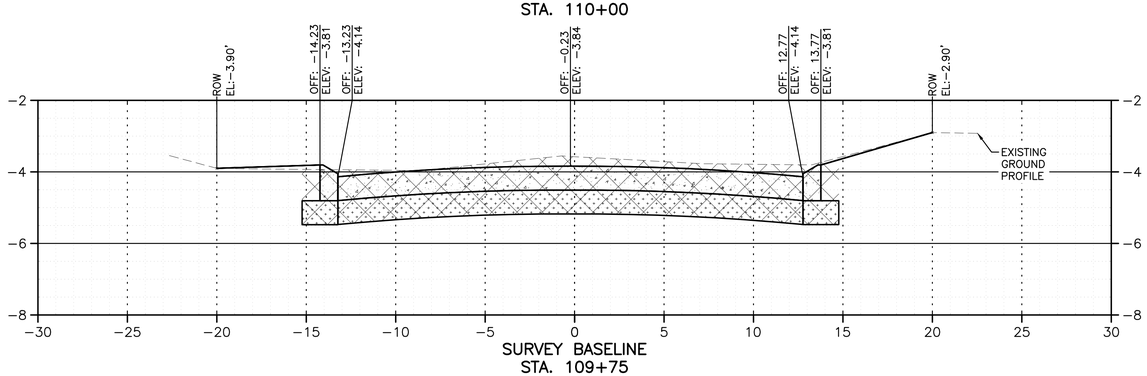
CUT: 57 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 110+00

STREET CUT/FILL

CUT: 42 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 109+75

STREET CUT/FILL

CUT: 45 CU. YDS.
FILL: 0 CU. YDS.

4 0 2 4 8 16
SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING
10-8-2021

SHEET NUMBER
107 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

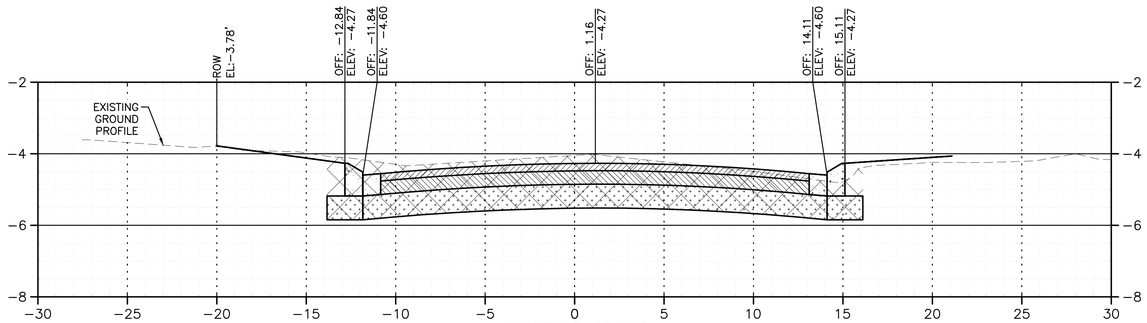
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	107

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 107 DATE of PLOT: Friday, November 05, 2021 @ 9:53am

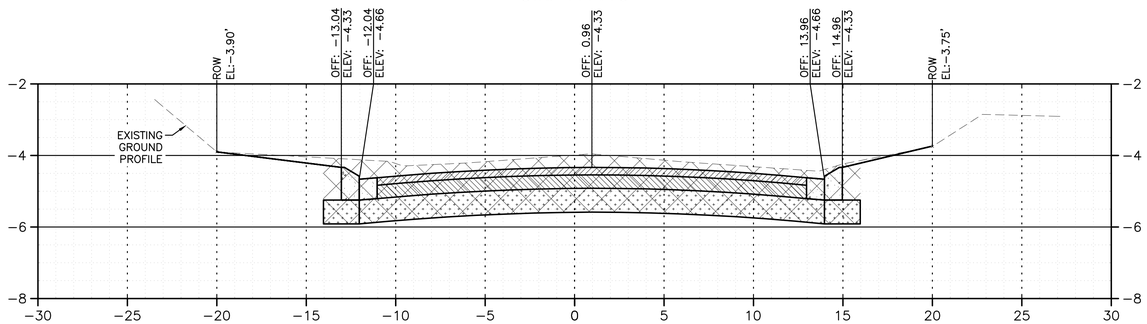


SURVEY BASELINE
STA. 111+75

STREET CUT/FILL

CUT: 41 CU. YDS.

FILL: 0 CU. YDS.

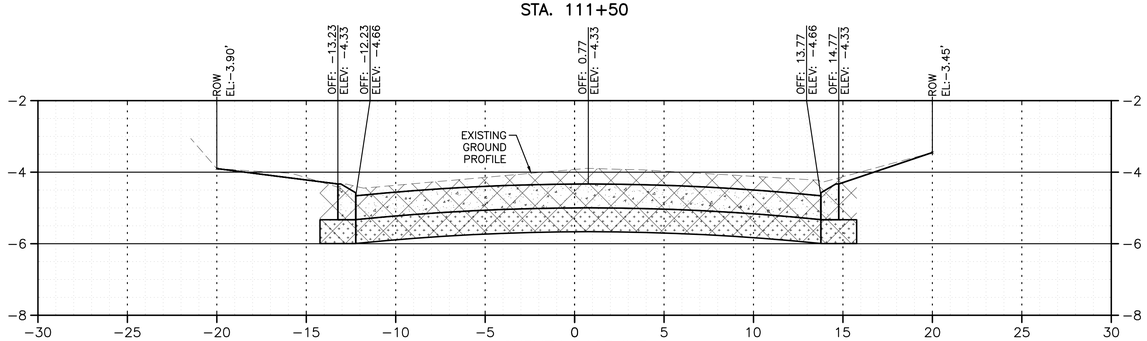


SURVEY BASELINE
STA. 111+50

STREET CUT/FILL

CUT: 45 CU. YDS.

FILL: 0 CU. YDS.

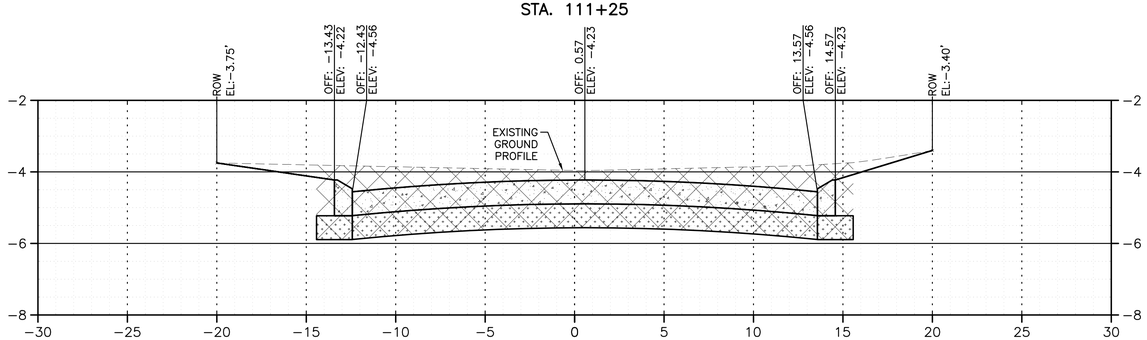


SURVEY BASELINE
STA. 111+25

STREET CUT/FILL

CUT: 49 CU. YDS.

FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 111+00

STREET CUT/FILL

CUT: 49 CU. YDS.

FILL: 0 CU. YDS.

4 0 2 4 8 16

SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED
PROFESSIONAL ENGINEER
CITY OF NEW ORLEANS
10-8-2021

SHEET NUMBER
108 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
3216 N. ESPLANADE AVE., STE. 200
METAIRIE, LA 70002 • (504) 831-7200

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

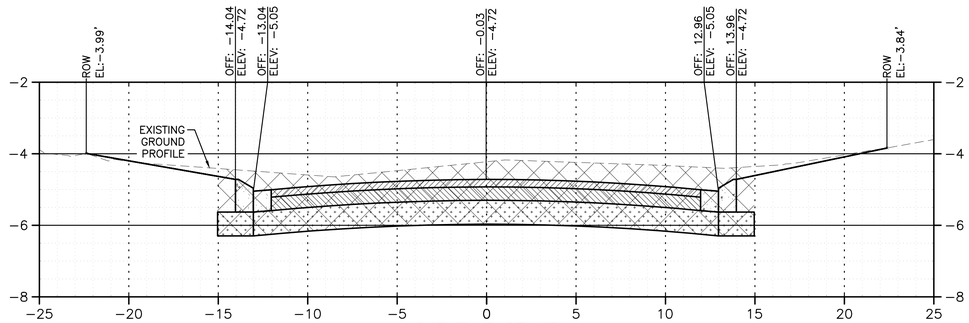
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	108

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

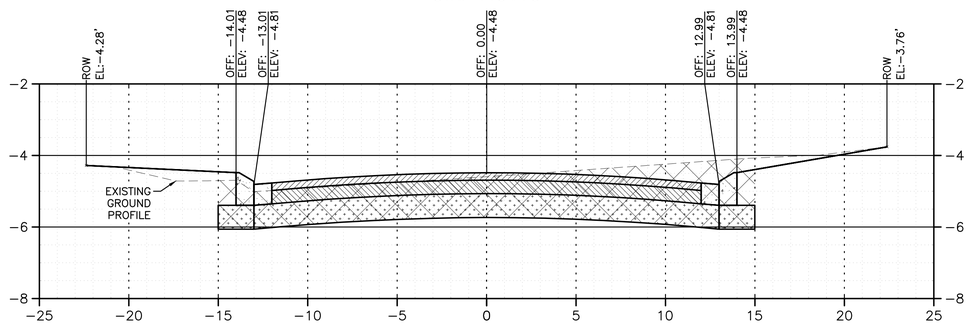
DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 108 DATE of PLOT: Friday, November 05, 2021 @ 9:53am



SURVEY BASELINE
STA. 113+75

STREET CUT/FILL

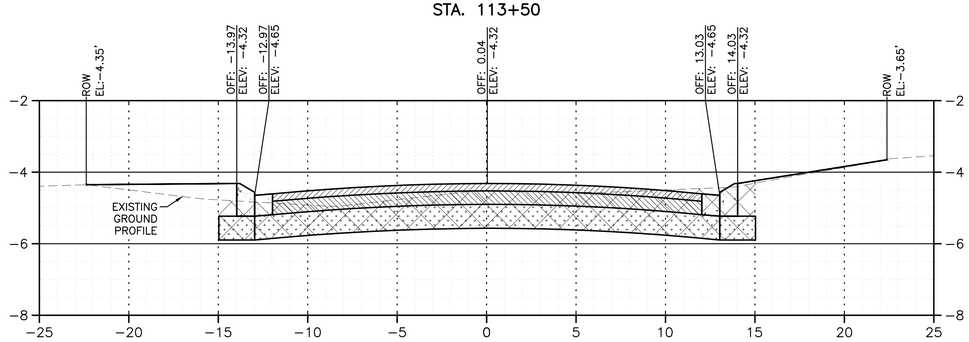
CUT: 43 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 113+50

STREET CUT/FILL

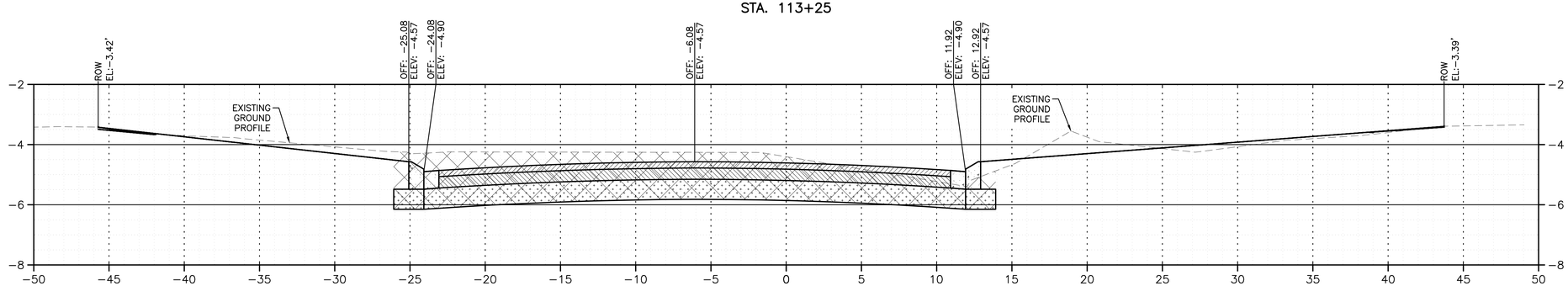
CUT: 33 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 113+25

STREET CUT/FILL

CUT: 35 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 112+50

STREET CUT/FILL

CUT: 128 CU. YDS.
FILL: 0 CU. YDS.

SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER
10-8-2021

SHEET NUMBER
109 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS • SURVEYORS
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
(504) 466-1309

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	109

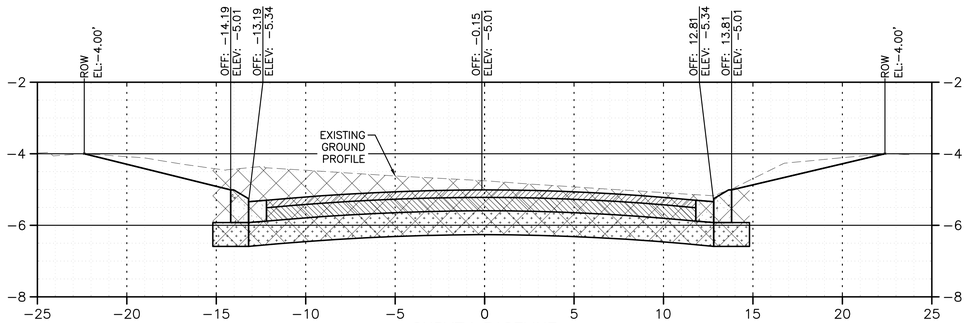
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 109 DATE of PLOT: Friday, November 05, 2021 @ 9:53am

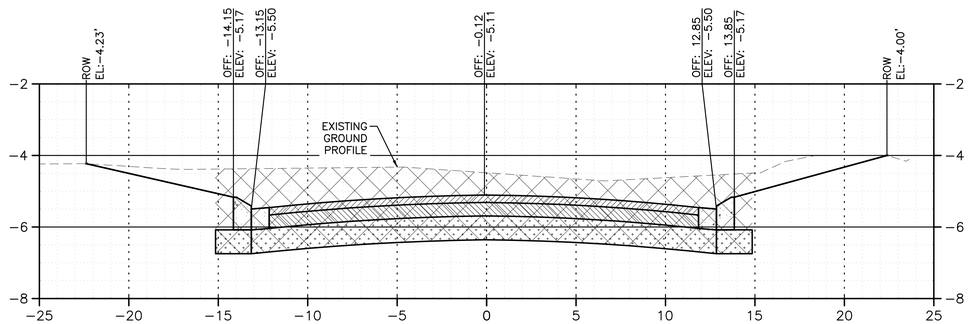
PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



SURVEY BASELINE
STA. 114+75

STREET CUT/FILL

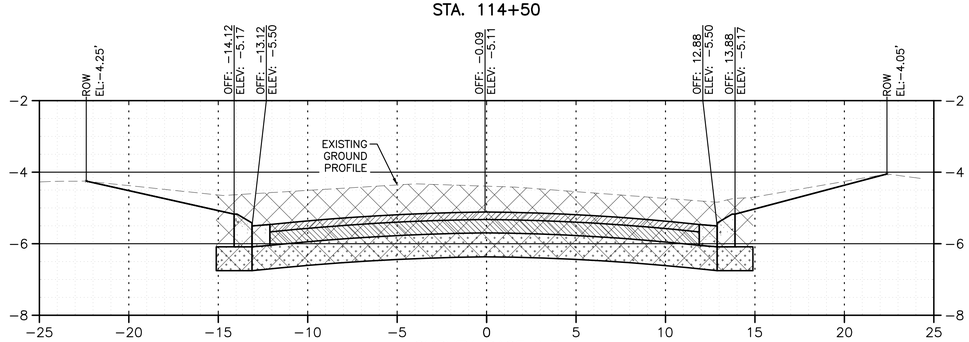
CUT: 52 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 114+50

STREET CUT/FILL

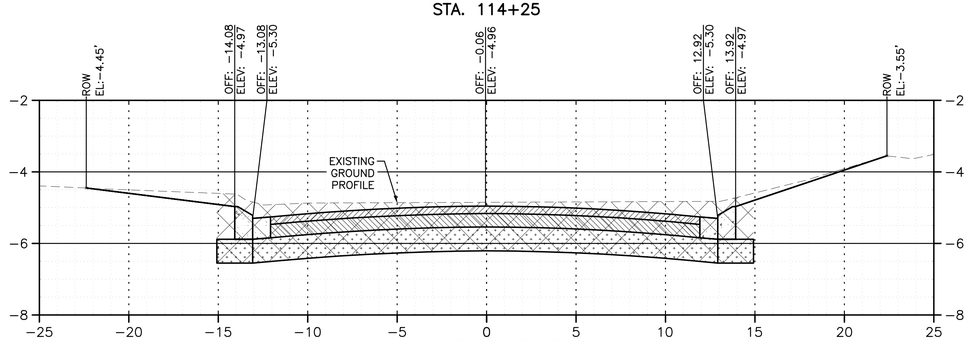
CUT: 57 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 114+25

STREET CUT/FILL

CUT: 49 CU. YDS.
FILL: 0 CU. YDS.



SURVEY BASELINE
STA. 114+00

STREET CUT/FILL

CUT: 46 CU. YDS.
FILL: 0 CU. YDS.

TOTALS:
CUT: 2,419.42 CU. YDS.
FILL: 0 CU. YDS.

4 0 2 4 8 16
SCALE 1" = 4'-0" HORIZ.
1" = 2'-0" VERT.

STATE OF LOUISIANA
ANDREW K. WOODROOF
REG. No. 37256
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING
10-8-2021

SHEET NUMBER
110 of 110

NO.	DATE	REVISION DESCRIPTION	BY
1	11-9-21	REVISED PER ADDENDUM 1	AKW

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	110

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

CROSS SECTIONS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_100_CROSS SECTIONS LAYOUT TAB: 110 DATE of PLOT: Friday, November 05, 2021 @ 9:53am

PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR. FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM

1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE CURRENT GENERAL SPECIFICATIONS, DRAWINGS NO. 7260-S, NO. 7260-W, NO. 7260-D, AND THE STANDARD DRAWINGS OF THE S&WB OF NEW ORLEANS, LOUISIANA EXCEPT WHERE OTHERWISE NOTED IN THE CONSTRUCTION DOCUMENTS. ALL SITE RESTORATION AND PAVEMENT SHALL BE PERFORMED IN ACCORDANCE WITH THE GENERAL SPECIFICATIONS FOR STREET PAVING (LATEST EDITION) AND STANDARD DRAWINGS (LATEST EDITION) FOR THE CITY OF NEW ORLEANS DEPARTMENT OF PUBLIC WORKS. ALL WORK REGARDING TREE PROTECTION, TRIMMING, ROOT PRUNING, SEEDING AND SODDING SHALL BE IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDELINES FOR THE CITY OF NEW ORLEANS DEPARTMENT OF PARKS AND PARKWAYS.

2. THE CONTRACTOR MUST VERIFY ELEVATIONS OF ALL EXISTING UTILITIES AND INVERTS THAT ARE WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THAT ANY EXISTING UTILITIES CROSSING A PROPOSED UTILITY (DRAIN, SEWER, WATER, GAS, ELECTRIC, ETC.) WILL NOT CONFLICT, PRIOR TO INSTALLING NEW UTILITY. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER IN A TIMELY MANNER TO AVOID ANY DELAYS CAUSED BY THE UTILITY ADJUSTMENT.

3. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COMPLETE SET OF AS-BUILT DRAWINGS SHOWING CHANGES FROM THE ORIGINAL DRAWINGS.

4. THE CONTRACTOR SHALL REPAIR/REPLACE IN KIND ALL FENCING ALTERED, REMOVED, DAMAGED OR RELOCATED DURING CONSTRUCTION. FENCING SHALL BE REPLACED/RESTORED AT THE END OF EACH WORK DAY.

5. THE CONTRACTOR SHALL BRACE ALL POLES ADJACENT TO EXCAVATION, AND BRACING SHALL REMAIN IN PLACE AFTER BACKFILLING UNTIL COMPACTION REQUIREMENTS FOR BACKFILL ARE MET. ALL WORK ADJACENT TO POLES SHALL BE COMPLETED PROMPTLY.

6. THE MAXIMUM OF OPEN TRENCH AWAITING PIPE INSTALLATION AND BACKFILL SHALL NOT EXCEED 100 LINEAR FEET PER CREW.

7. THE CONTRACTOR SHALL PROVIDE DESIGN SERVICES, MATERIALS AND LABOR NECESSARY FOR SHEETING, SHORING AND BRACING OF SUPPORTS AS REQUIRED FOR TRENCHES IN A SAFE WORKING CONDITION. THE CONTRACTOR SHALL PROVIDE FOR PROTECTION AND SUPPORT OF UTILITIES, ROADWAYS, BUILDINGS, AND STRUCTURES, ETC. WHEN PERFORMING PROJECT WORK. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE SYSTEM TO WITHSTAND LATERAL PRESSURE IN TRENCHES, IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

8. ALL STRUCTURES WITHIN THE CONCRETE PAVEMENT SHALL BE ISOLATED (BOXED OUT) BY MEANS OF AN APPROVED SQUARE ISOLATION PAD. REFER TO DPW STD. DRAWINGS.

9. IN THE CASE THAT POINT REPAIRS AND LINING ARE BOTH REQUIRED FOR A SINGLE LINE SEGMENT, POINT REPAIRS SHOULD BE PERFORMED FIRST.

10. CONTRACTOR SHALL INSTALL INTERIM PAVEMENT IN PLACE OF FINAL PAVEMENT RESTORATION WHERE AND AS SCHEDULED ON THESE PLANS. INTERIM PAVEMENT SHALL CONSIST OF 12" OF COMPACTED BASE AGGREGATE COURSE AND 2-1/2" OF ASPHALTIC WEARING COURSE IN ACCORDANCE WITH THE DPW PROJECT SPECIFICATIONS. THE QUANTITIES WILL BE MEASURED AND PAID FOR IN ACCORDANCE WITH THE RESPECTIVE UNIT BID PRICES FOR C302(51) BASE COURSE AND C504(53)(1) SUPERPAVE ASPHALTIC CONCRETE WEARING COURSE (2.5" THICK).

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING NECESSARY EQUIPMENT MATERIAL, LABOR AND SUPERVISION FOR THE PLUGGING, BLOCKING, PUMPING, AND BY-PASSING OF SEWAGE FLOW WHEN REQUIRED TO PERFORM THE SEWER LINE WORK. A PLAN FOR FLOW BY-PASS OPERATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST FIVE WORKING DAYS PRIOR TO PLANNED BY-PASS.

12. UNLESS SPECIFICALLY NOTED OTHERWISE, DRAIN INLETS, MANHOLES, CATCH BASINS AND DRAIN LINES ARE TO REMAIN UNDISTURBED. IF SUCH UTILITY STRUCTURES ARE DISTURBED BY THE CONTRACTOR'S WORK, THE UTILITY STRUCTURES SHALL BE REPAIRED/REPLACED IN KIND BY THE CONTRACTOR AT HIS EXPENSE.

13. LOCATIONS OF EXISTING UTILITIES INDICATED ON THE PLANS ARE APPROXIMATE, SHOWN FOR INFORMATIONAL PURPOSES ONLY, AND ARE BASED, IN PART, ON INFORMATION FURNISHED BY UTILITY COMPANIES AND OTHER AVAILABLE SOURCES. THE SEWERAGE AND WATER BOARD AND THE DEPARTMENT OF PUBLIC WORKS ARE NOT RESPONSIBLE FOR THE ACCURACY OF THE UTILITY LOCATIONS SHOWN ON THE PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND TO CONTACT THE RESPECTIVE UTILITY ENTITIES IN WRITING AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE DIRECTLY WITH THE APPROPRIATE UTILITY COMPANIES AND, IF NECESSARY, HAVE THE UTILITIES RELOCATED FOR INSTALLATION OF THE NEW SEWER LINES. IN THE EVENT OF A PLANNED UTILITY OUTAGE, THE CONTRACTOR SHALL NOTIFY IN WRITING THOSE AFFECTED AT LEAST 48 HOURS PRIOR TO DISRUPTION OF UTILITY SERVICES.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES THAT OCCURS DURING CONSTRUCTION AND SHALL IMMEDIATELY REPORT ANY DAMAGE TO THE AFFECTED UTILITY ENTITIES AND THE ENGINEER. ALL REPAIRS OF THE DAMAGED UTILITIES SHALL BE PERFORMED BY THE RESPECTIVE UTILITY ENTITY, EXCEPT IN THE CASE OF SEWERAGE AND WATER BOARD UTILITIES. THE CONTRACTOR SHALL REPAIR ALL DAMAGED SEWERAGE AND WATER BOARD UTILITIES, EXCEPT SEWERAGE AND WATER BOARD ELECTRICAL AND STREET LIGHT UTILITIES, WHICH SHALL BE PERFORMED BY ENTERGY. ANY DAMAGED UTILITY SERVICES SHALL BE PROMPTLY REPAIRED AND SHALL NOT REMAIN OUT OF SERVICE OVERNIGHT. ALL UTILITY REPAIR COSTS SHALL BE BORNE BY THE CONTRACTOR.

15. THE CONTRACTOR SHALL MAINTAIN A SAFE DISTANCE FROM ALL ENERGIZED POWER LINES IN ACCORDANCE WITH OSHA AND NEC REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE MAXIMUM HEIGHT AND REACH ATTAINABLE BY ANY PART OF ANY PIECE OF EQUIPMENT. AFTER COORDINATING WITH THE POWER ENTITY TO DETERMINE THE HEIGHT LOCATION OF THE POWER LINE, THE CONTRACTOR SHALL DETERMINE THE SAFE CLEARANCE WHICH WILL NOT BE VIOLATED. IF THE SAFE CLEARANCE WILL BE VIOLATED, PRIOR TO BEGINNING ANY OPERATIONS IN THE AREA, THE CONTRACTOR SHALL COORDINATE WITH THE ENERGY PROVIDER TO DE-ENERGIZE THE LINE. THE CONTRACTOR SHALL ESTABLISH A COORDINATION PROCEDURE WITH THE POWER ENTITY TO ENSURE THAT THE CONTRACTOR SHALL HAVE SUFFICIENT NOTICE TO ALLOW REMOVAL OF ALL EQUIPMENT WHICH MAY VIOLATE THE SAFE CLEARANCE FROM THE AREA PRIOR TO THE LINE BEING RE-ENERGIZED.

16. CONTRACTORS SHALL SUBMIT FOR REVIEW BY THE ENGINEER ALL CCTV OF SEWER LINES. NO FINAL RESTORATION SHALL BEGIN UNTIL THE ENGINEER HAS DETERMINED THAT NO ADDITIONAL REPAIRS ARE NEEDED ON THE SEWER LINE SEGMENT.

17. CONTRACTORS SHALL TRACK AND INVOICE FOR SSERP SEWER REPAIRS AND FEMA FUNDED SEWER REPAIRS, INCLUDING RESTORATION ASSOCIATED WITH EACH REPAIR SEPARATELY.

18. SERVICE CONNECTION LOCATIONS SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND FOR ESTIMATING PURPOSES ONLY. CONTRACTORS SHALL VERIFY LOCATION AND DIRECTION OF ALL SANITARY SEWER HOUSE CONNECTIONS REQUIRING REPLACEMENT AND OBTAIN SEWERAGE & WATER BOARD CONCURRENCE BEFORE SAW CUTTING, PAVEMENT REMOVAL AND EXCAVATION RELATED TO SERVICE CONNECTION REPLACEMENTS. ANY SAW CUTTING, PAVEMENT REMOVAL AND REPLACEMENT OR OTHER EXCAVATION ACTIVITIES PRIOR CONCURRENCE WILL NOT BE REIMBURSED BY THE SEWERAGE & WATER BOARD.

19. ALL LINES SCHEDULED FOR CIPP INSTALLATION UNDER THIS CONTRACT SHALL INCLUDE CCTV INSPECTION OF ALL LATERAL SERVICE CONNECTIONS, EXCLUDING LATERAL SERVICE CONNECTIONS REPLACED UNDER THIS CONTRACT, AND SHALL INCLUDE CIPP LINING OF ALL NON-PVC LATERAL SERVICE CONNECTIONS.

SEWER SHEET NO.	DESCRIPTION
S1	INDEX TO SHEETS AND GENERAL NOTES
S2	MANHOLE REHABILITATION MAP & TABLE
S3 – S4	SSERP REHABILITATION PLANS
S5	MILL & OVERLAY TYPICAL DETAILS & SCHEDULE
S6 – S7	SSERP PROGRAM DETAILS

TOTAL SHEETS = 7

REHABILITATION PLANS:

#	BLOCK NUMBER	BLOCK NAME	LINE SEGMENT	SHEET NUMBER	PROGRAM
1	4400	EDEN ST	134-032/134-031	S-3	SSERP
2	1600	S DUPRE ST	134-049/134-048	S-3	SSERP
3	4500	EDEN ST	135-024/134-031	S-4	SSERP

STATE OF LOUISIANA
Christopher Lee Sanchez
REG. No. 32878
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

10/28/2021

SHEET NUMBER
S-1 OF S-7

NO.	DATE	REVISION DESCRIPTION	BY

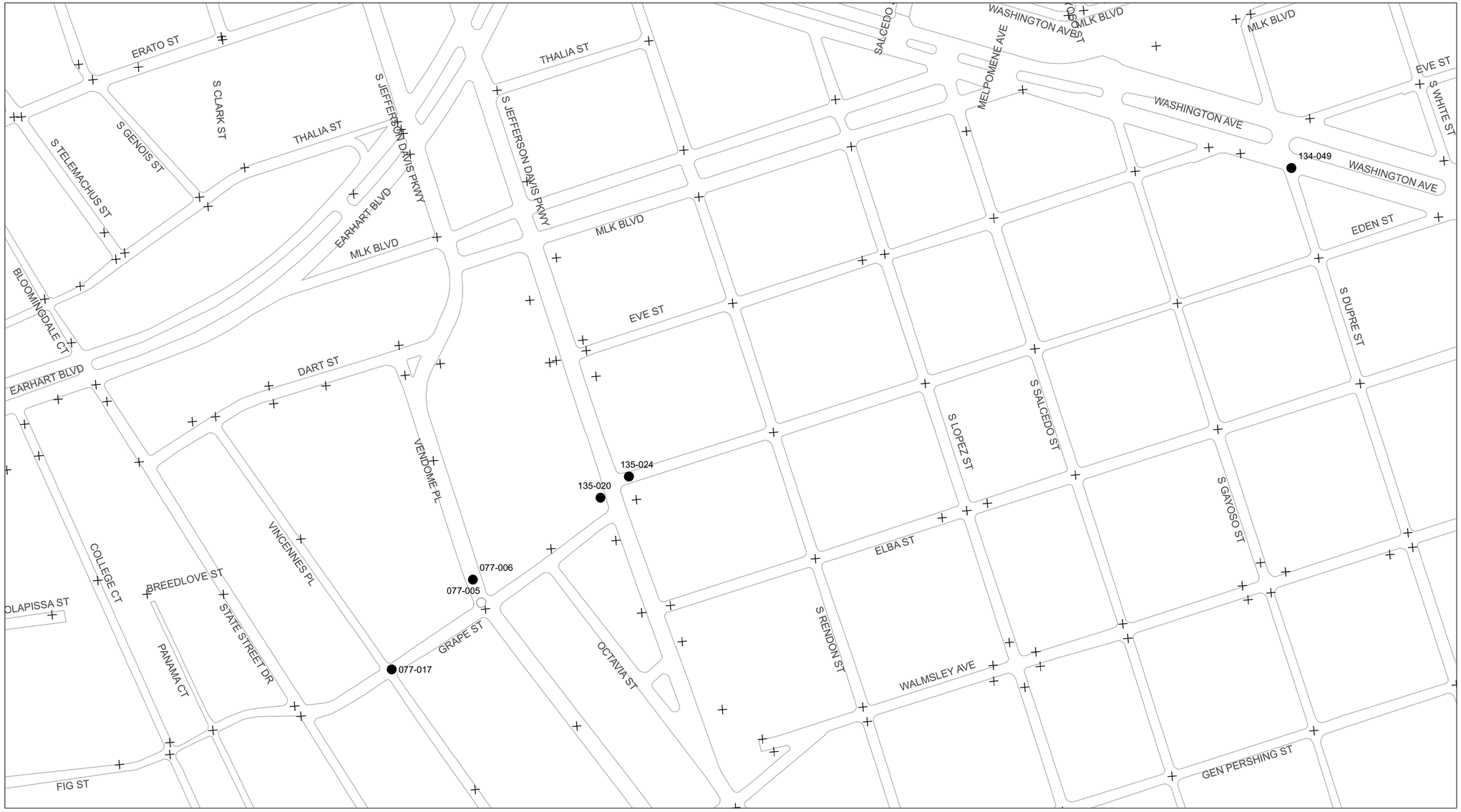
Stantec

STANTEC
1340 POYDRAS ST, STE 1420, NEW ORLEANS, LA 70112

DESIGNED A.D. | SCALE NTS
CHECKED S.N. | DATE
DETAILED | SHEET
CHECKED

CITY OF NEW ORLEANS, LOUISIANA
BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031
TM005–BROADMOOR, FONTAINEBLEAU WATERLINE REPLACMENT PROGRAM
GENERAL NOTES AND INDEX TO SHEETS

PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR. FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM



Legend

Sewer Manholes

- ○ FEMA
- ● SSERP
- × Manholes Not in Scope

N

#	MANHOLE NUMBER	STREET NAME	BLOCK NUMBER	CROSS STREET	APPROXIMATE DEPTH	VERTICALLY ADJUST FRAME AND COVER	REPLACE FRAME AND COVER	INSTALL PARTIAL DEPTH LINER	INSTALL FULL DEPTH LINER
1	077-005	GRAPE ST	4700	VENDOME PL	7				FEMA
2	077-006	VENDOME PL	4200	GRAPE ST	7				SSERP
3	077-017	GRAPE ST	4800	VINCENNES ST			SSERP	SSERP	
4	135-024	EDEN ST	4500	S JEFFERSON DAVIS PKWY	5		SSERP		SSERP
5	135-020	EDEN ST	4500	S JEFFERSON DAVIS PKWY			SSERP	SSERP	
6	134-049	S DUPRE ST	1600	WASHINGTON AVE	5		SSERP		SSERP

STATE OF LOUISIANA
Christopher Lee Sandoz
REG. No. 32878
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

10/28/2021

SHEET NUMBER
S-2 OF S-7

NO.	DATE	REVISION DESCRIPTION	BY

Stantec

STANTEC
1340 POYDRAS ST, STE 1420, NEW ORLEANS, LA 70112

DESIGNED	A.D.	SCALE	NTS
CHECKED	S.N.	DATE	
DETAILED		SHEET	
CHECKED			

CITY OF NEW ORLEANS, LOUISIANA

BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031

TM005–BROADMOOR, FONTAINEBLEAU WATERLINE REPLACMENT PROGRAM

MANHOLE REHABILITATION MAP & TABLE

DEPARTMENT OF PUBLIC WORKS

NOTES:
1) After all lining is completed, all active laterals shall be reinstated as directed by the Engineer.

CCTV INSPECTION DETAILS FROM SURVEY ON 1/30/2003
Street: "EDEN" Size: 12 in. Material: "VC"
Up Depth: 13.00 ft. Dn Depth: 15.00 ft. Length: 358 ft.

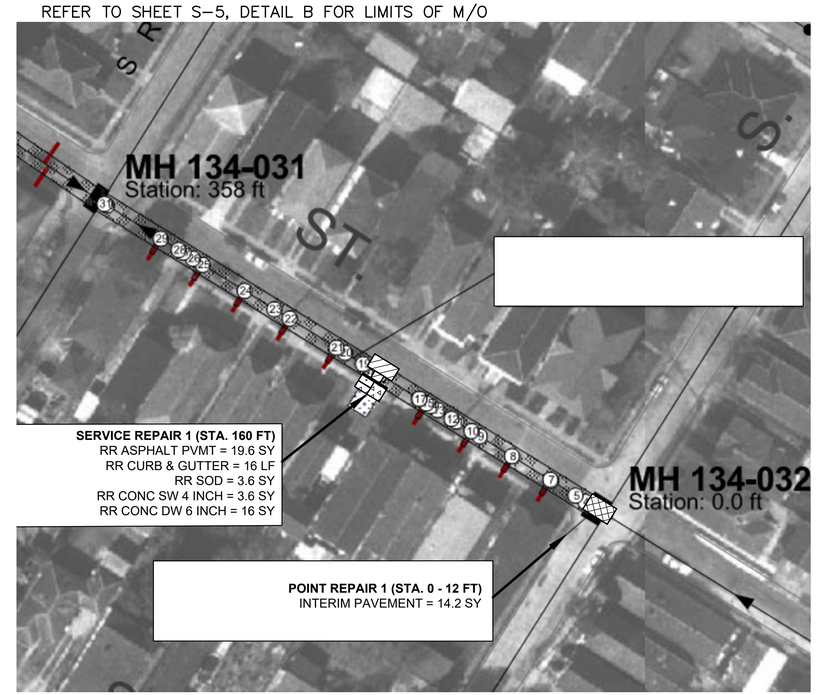
DETAIL	STATION	VIDEO CT.	CODE	DESCRIPTION
1	0.0 ft.	10455	UMH	MANHOLE
2	3.0 ft.	10523	CC	CIRCUMFERENTIAL CRACK
3	3.0 ft.	10523	X	COLLAPSED PIPE
4	14.0 ft.	10617	MC	CHANGE IN SEWER MATERIAL
5	21.0 ft.	10626	DEG,S1	DEBRIS GREASE
6	38.0 ft.	10701	DEG,F1	DEBRIS GREASE
7	39.0 ft.	10710	CN	CONNECTION
8	66.0 ft.	10843	CN	CONNECTION
9	89.0 ft.	11159	DEB	DEBRIS SILT
10	95.0 ft.	11216	CN	CONNECTION
11	106.0 ft.	11247	MC	CHANGE IN SEWER MATERIAL
12	109.0 ft.	11254	CC	CIRCUMFERENTIAL CRACK
13	119.0 ft.	11331	CC	CIRCUMFERENTIAL CRACK
14	124.0 ft.	11365	FC	CIRCUMFERENTIAL FRACTURE
15	127.0 ft.	11432	CN	CONNECTION
16	132.0 ft.	11451	FL	LONGITUDINAL FRACTURE
17	132.0 ft.	11461	IBJ	INFILTRATION SEEPER AT JOINT
18	160.0 ft.	11608	LDI	LATERAL - DYED INFILTRATION
19	172.0 ft.	11634	FL	LONGITUDINAL FRACTURE
20	185.0 ft.	11656	FML	MULTIPLE FRACTURE- Lining
21	191.0 ft.	11918	CN	CONNECTION
22	224.0 ft.	12020	CN	CONNECTION
23	235.0 ft.	12145	FL	LONGITUDINAL FRACTURE
24	256.0 ft.	12222	CN	CONNECTION
25	286.0 ft.	12332	CN	CONNECTION
26	293.0 ft.	12349	FC	CIRCUMFERENTIAL FRACTURE
27	300.0 ft.	12403	FL	LONGITUDINAL FRACTURE
28	303.0 ft.	12417	FML	MULTIPLE FRACTURE- Lining
29	316.0 ft.	12456	CN	CONNECTION
30	354.0 ft.	12657	FML	MULTIPLE FRACTURE- Lining
31	356.0 ft.	12745	DMH	DOWNSTREAM MANHOLE

STATE OF LOUISIANA
LOUIS L. JACKSON
License. No. 29314
PROFESSIONAL ENGINEER
August 3, 2015
CDM Smith For MWH

Rehabilitation Plan
Pipe from MH 134-032 to MH 134-031

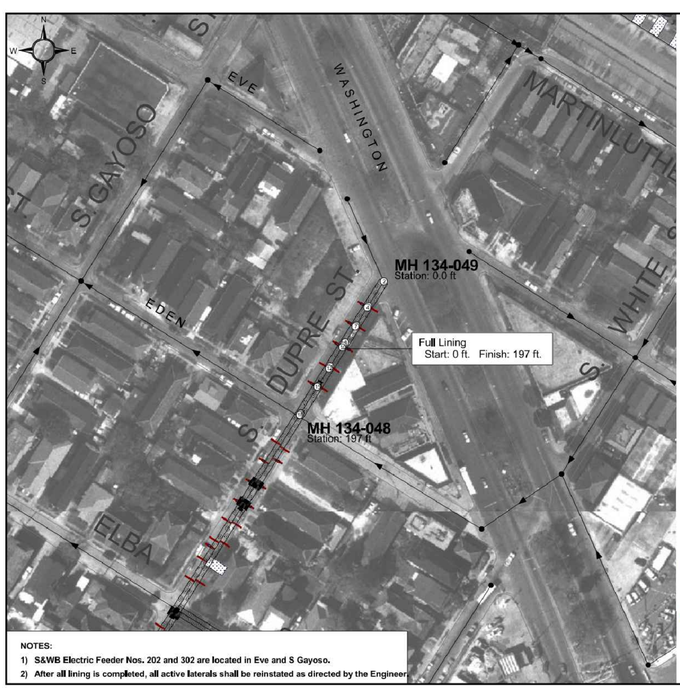
SSERP SEWER REHABILITATION EDEN ST (4400) NTS

NOTE:
THE 4400 BLOCK OF EDEN ST HAS ASPHALT MILL AND OVERLAY REQUIREMENTS.
REFER TO SHEET S-5, DETAIL B FOR LIMITS OF M/O



NOTE: PAVEMENT RESTORATION FOR THIS ROADWAY SHALL BE "INTERIM PAVEMENT" AS SCHEDULED IN THE SPECIFICATIONS. PERMANENT SITE RESTORATION, INCLUDING INTERSECTIONS, TRANSITIONS AND ADA RAMPS, WILL BE PERFORMED UNDER DPW CONTRACT RR012. SIDEWALKS, DRIVEWAYS AND SOD SHALL BE RESTORED IN ACCORDANCE TO DPW STANDARDS.

SSERP ROADWAY RESTORATION EDEN ST (4400) NTS



NOTES:
1) S&WB Electric Feeder Nos. 202 and 302 are located in Eve and S Gayoso.
2) After all lining is completed, all active laterals shall be reinstated as directed by the Engineer.

CCTV INSPECTION DETAILS FROM SURVEY ON 1/24/2003
Street: "S DUPRE" Size: 8 in. Material: "VC"
Up Depth: 5.00 ft. Dn Depth: 9.00 ft. Length: 197 ft.

DETAIL	STATION	VIDEO CT.	CODE	DESCRIPTION
1	0.0 ft.	04119	FML,S6	MULTIPLE FRACTURE- Lining
2	0.0 ft.	04020	UMH	MANHOLE
3	36.0 ft.	04255	CNA	ABANDONED CONNECTION
4	38.0 ft.	04314	CN	CONNECTION
5	64.0 ft.	04417	CNA	ABANDONED CONNECTION
6	64.0 ft.	04423	FC	CIRCUMFERENTIAL FRACTURE
7	66.0 ft.	04429	CN	CONNECTION
8	89.0 ft.	04524	DEG,S1	DEBRIS GREASE
9	94.0 ft.	04543	CNM	MATERIAL INSIDE CONNECTION
10	96.0 ft.	04601	CN	CONNECTION
11	124.0 ft.	04700	CNA	ABANDONED CONNECTION
12	127.0 ft.	04714	CNA	ABANDONED CONNECTION
13	152.0 ft.	04817	CNA	ABANDONED CONNECTION
14	153.0 ft.	04831	JDM	DISPLACED JOINT MEDIUM
15	154.0 ft.	04838	CNM	MATERIAL INSIDE CONNECTION
16	192.0 ft.	05023	FML,F6	MULTIPLE FRACTURE- Lining
17	193.0 ft.	05025	DEG,F1	DEBRIS GREASE
18	195.0 ft.	05109	DMH	DOWNSTREAM MANHOLE

STATE OF LOUISIANA
LOUIS L. JACKSON
License. No. 29314
PROFESSIONAL ENGINEER
August 3, 2015
CDM Smith For MWH

Rehabilitation Plan
Pipe from MH 134-049 to MH 134-048

SSERP SEWER REHABILITATION S DUPRE ST (1600) NTS

FULL LINING ONLY
NO RESTORATION WORK ANTICIPATED

RESTORATION LIMITS AND QUANTITIES WILL BE FIELD DETERMINED IF NECESSARY

LINE REHAB SHALL CONSTITUTE A FULL LENGTH LINER

STATE OF LOUISIANA
RUHAN ISIM
License No. 39882
PROFESSIONAL ENGINEER
10/19/2021

LEGEND

- REMOVAL AND REPLACEMENT OF CONCRETE PAVEMENT, SIDEWALK, OR ADA RAMP SWBNO (TRIANG)
- REMOVAL AND REPLACEMENT OF ASPHALT ROADWAY SWBNO (ANSI 131)
- REMOVAL AND REPLACEMENT OF ASPHALT/CONCRETE COMPOSITE ROADWAY SWBNO (ANSI 131/TRIANG)
- COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- REMOVAL AND REPLACEMENT OF BRICK PAVEMENT, SIDEWALK, OR ADA RAMP SWBNO (BRICK)
- REMOVAL AND REPLACEMENT OF SOD SURFACE COURSESWBNO (GRASS)
- REMOVAL AND REPLACEMENT OF GRAVEL SURFACE COURSE SWBNO (GRAVEL)
- REMOVE EXISTING PAVEMENT AND PLACE INTERIM ASPHALT
- REMOVAL AND REPLACEMENT OF CURB (ALL TYPES)

NOTE: CONTRACTOR TO FIELD VERIFY THE LOCATION AND DIRECTION OF ALL SERVICE CONNECTIONS.

SHEET NUMBER
S-3 OF S-7

NO.	DATE	REVISION DESCRIPTION	BY

INTEGRATED LOGISTICAL SUPPORT, INC.

INTEGRATED LOGISTICAL SUPPORT, INC.
5130 TCHOUPITOULAS ST, NEW ORLEANS, LA 70115

DESIGNED	HM	SCALE	NTS
CHECKED	RI		
DETAILED	HM	DATE	10/19/2021
CHECKED	RI	SHEET	

CITY OF NEW ORLEANS, LOUISIANA
BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031
TM005–BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM
4400 EDEN ST / 1600 S DUPRE ST

DEPARTMENT OF PUBLIC WORKS

PROJECT ID: TM005, PROJECT NUMBER: PW 21031, BROADMOOR, FONTAINBLEAU WATERLINE REPLACEMENT PROGRAM

CCTV INSPECTION DETAILS FROM SURVEY ON 6/13/2002
Street: EDEN ST. From MH: 135-024 To MH: 134-031
Size: 8 INCH Date: 6/13/2002 Length: 348 ft.

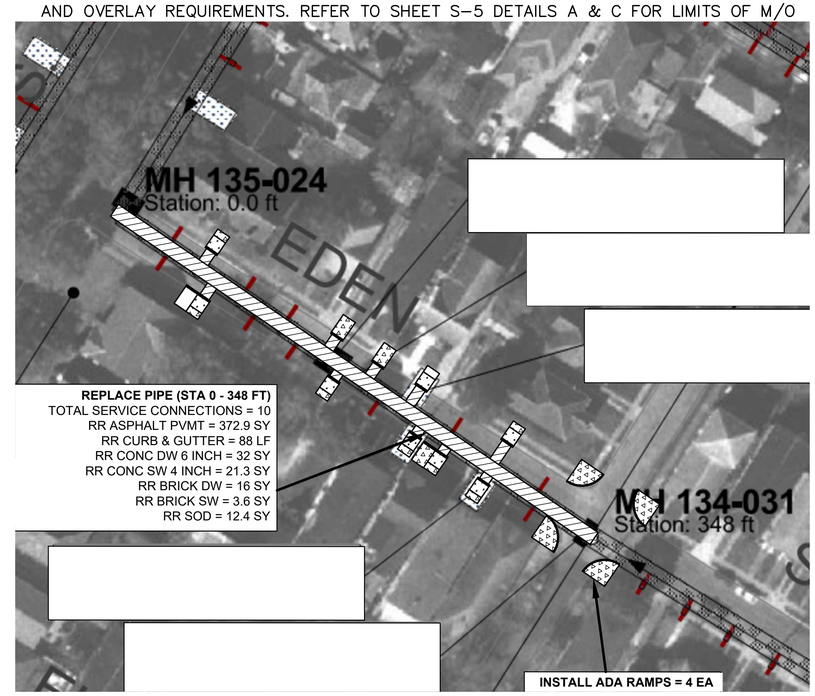
DETAIL	STATION	VIDEO CL	CODE	DESCRIPTION
1	0.0 ft.	00:00	UMH	MANHOLE
2	1.0 ft.	00:40	S-LS1	LINE SAGS
3	15.8 ft.	00:54	S-LF1	LINE SAGS
4	16.8 ft.	00:40	FC	CIRCUMFERENTIAL FRACTURE
5	27.8 ft.	00:01	S-LS2	LINE SAGS
6	31.8 ft.	00:31	FC	CIRCUMFERENTIAL FRACTURE
7	35.8 ft.	00:20	CMA	ABANDONED CONNECTION
8	36.8 ft.	00:28	CMM	MATERIAL INSIDE CONNECTION
9	38.8 ft.	00:30	FC	CIRCUMFERENTIAL FRACTURE
10	46.8 ft.	00:37	CMM	MATERIAL INSIDE CONNECTION
11	57.8 ft.	00:41	CMA	ABANDONED CONNECTION
12	62.8 ft.	00:05	HI	HOLE IN THE PIPE
13	44.8 ft.	00:10	S-LF2	LINE SAGS
14	49.8 ft.	00:20	FC	CIRCUMFERENTIAL FRACTURE
15	58.8 ft.	00:43	CN	CONNECTION
16	59.8 ft.	00:43	CC	CIRCUMFERENTIAL CRACK
17	53.8 ft.	00:53	IE	EVIDENCE OF INFILTRATION
18	64.8 ft.	00:56	CL	LONGITUDINAL CRACK
19	70.8 ft.	00:58	CC	CIRCUMFERENTIAL CRACK
20	71.8 ft.	00:55	CN	CONNECTION
21	83.8 ft.	00:20	IEJ	EVIDENCE OF INFILTRATION AT JOINT
22	89.8 ft.	00:36	CMM	MATERIAL INSIDE CONNECTION
23	89.8 ft.	00:36	CMA	ABANDONED CONNECTION
24	90.8 ft.	00:53	FC	CIRCUMFERENTIAL FRACTURE
25	96.8 ft.	00:07	ISJ	INFILTRATION SEEPER AT JOINT
26	102.0 ft.	00:16	CMA	ABANDONED CONNECTION
27	102.0 ft.	00:16	CMM	MATERIAL INSIDE CONNECTION
28	104.0 ft.	00:44	S-LS2	LINE SAGS
29	110.0 ft.	00:46	S-LF2	LINE SAGS
30	120.0 ft.	00:00	CMM	MATERIAL INSIDE CONNECTION
31	120.0 ft.	00:06	CMA	ABANDONED CONNECTION
32	121.0 ft.	00:06	IEJ	EVIDENCE OF INFILTRATION AT JOINT
33	124.0 ft.	00:12	IEJ	EVIDENCE OF INFILTRATION AT JOINT
34	133.0 ft.	00:21	CMA	ABANDONED CONNECTION
35	133.0 ft.	00:21	CMM	MATERIAL INSIDE CONNECTION
36	144.0 ft.	00:34	IEJ	EVIDENCE OF INFILTRATION AT JOINT
37	146.0 ft.	00:37	CN	CONNECTION
38	149.0 ft.	00:03	JEM	DISPLACED JOINT MEDIUM
39	151.0 ft.	00:20	CND	OFFSET CONNECTION
40	160.0 ft.	00:07	CMM	MATERIAL INSIDE CONNECTION
41	163.0 ft.	00:07	CND	OFFSET CONNECTION
42	161.0 ft.	00:04	CN	CONNECTION
43	190.0 ft.	01:00	CC	CIRCUMFERENTIAL CRACK
44	192.0 ft.	01:05	FC	CIRCUMFERENTIAL FRACTURE
45	194.0 ft.	01:03	CMA	ABANDONED CONNECTION
46	195.0 ft.	01:12	CC	CIRCUMFERENTIAL CRACK
47	199.0 ft.	01:16	CL	LONGITUDINAL CRACK
48	211.0 ft.	01:20	CND	OFFSET CONNECTION
49	211.0 ft.	01:23	FC	CIRCUMFERENTIAL FRACTURE
50	216.0 ft.	01:31	CM	MULTIPLE CRACKS
51	222.0 ft.	01:31	FC	CIRCUMFERENTIAL FRACTURE
52	222.0 ft.	01:31	IS	INFILTRATION SEEPER
53	224.0 ft.	01:35	CND	OFFSET CONNECTION
54	230.0 ft.	01:35	FML	MULTIPLE FRACTURE(Long)
55	236.0 ft.	01:38	FML	MULTIPLE FRACTURE(Long)
56	240.0 ft.	01:40	CMA	ABANDONED CONNECTION
57	241.0 ft.	01:40	CN	CONNECTION
58	273.0 ft.	02:11	CN	CONNECTION
59	275.0 ft.	01:21	CND	OFFSET CONNECTION
60	306.0 ft.	03:10	CMA	ABANDONED CONNECTION
61	309.0 ft.	01:46	CMA	ABANDONED CONNECTION
62	320.0 ft.	02:15	FC	CIRCUMFERENTIAL FRACTURE
63	333.0 ft.	01:56	S-LS4	LINE SAGS
64	340.0 ft.	01:00	JEL	DISPLACED JOINT LARGE
65	340.0 ft.	01:00	S-LF4	LINE SAGS
66	340.0 ft.	03:10	DAM	DOWNSTREAM MANHOLE

STATE OF LOUISIANA
LOUIS L. JACKSON
License No. 29304
PROFESSIONAL ENGINEER
ENGINEER
August 3, 2015
CDM Smith
For
MWH

Rehabilitation Plan
Pipe from MH 135-024 to MH 134-031

SSERP SEWER REHABILITATION EDEN (4500) NTS

NOTE:
THE 4500 BLOCK OF EDEN ST AND INTERSECTION OF S RENDON HAVE ASPHALT MILL AND OVERLAY REQUIREMENTS. REFER TO SHEET S-5 DETAILS A & C FOR LIMITS OF M/O



SSERP ROADWAY RESTORATION EDEN (4500) NTS

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STATE OF LOUISIANA
RUHAN ISIM
License No. 39882
PROFESSIONAL ENGINEER
ENGINEER
10/19/2021

LEGEND

- REMOVAL AND REPLACEMENT OF CONCRETE PAVEMENT, SIDEWALK, OR ADA RAMP SWBNO (TRIANG)
- REMOVAL AND REPLACEMENT OF ASPHALT ROADWAY SWBNO (ANSI 131)
- REMOVAL AND REPLACEMENT OF ASPHALT/CONCRETE COMPOSITE ROADWAY SWBNO (ANSI 131/TRIANG)
- COLD MILL/COLD PLANING AND PLACEMENT OF ASPHALT SURFACE COURSE SWBNO (ANSI 133)
- REMOVAL AND REPLACEMENT OF BRICK PAVEMENT, SIDEWALK, OR ADA RAMP SWBNO (BRICK)
- REMOVAL AND REPLACEMENT OF SOD SURFACE COURSESWBNO (GRASS)
- REMOVAL AND REPLACEMENT OF GRAVEL SURFACE COURSE SWBNO (GRAVEL)
- REMOVE EXISTING PAVEMENT AND PLACE INTERIM ASPHALT
- REMOVAL AND REPLACEMENT OF CURB (ALL TYPES)

NOTE: CONTRACTOR TO FIELD VERIFY THE LOCATION AND DIRECTION OF ALL SERVICE CONNECTIONS.

SHEET NUMBER
S-4 OF S-7

NO.	DATE	REVISION DESCRIPTION	BY

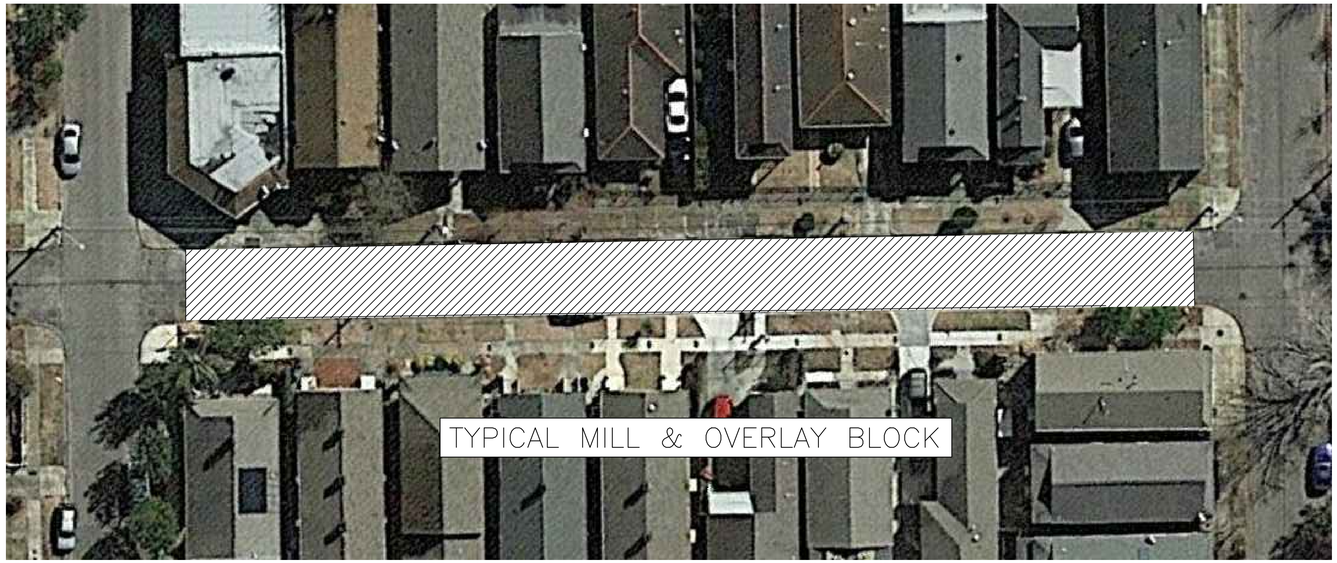
INTEGRATED LOGISTICAL SUPPORT, INC.

INTEGRATED LOGISTICAL SUPPORT, INC.
5130 TCHOUPITOULAS ST. NEW ORLEANS, LA 70115

DESIGNED	HM	SCALE	NTS
CHECKED	RI		
DETAILED	HM	DATE	10/19/2021
CHECKED	RI	SHEET	

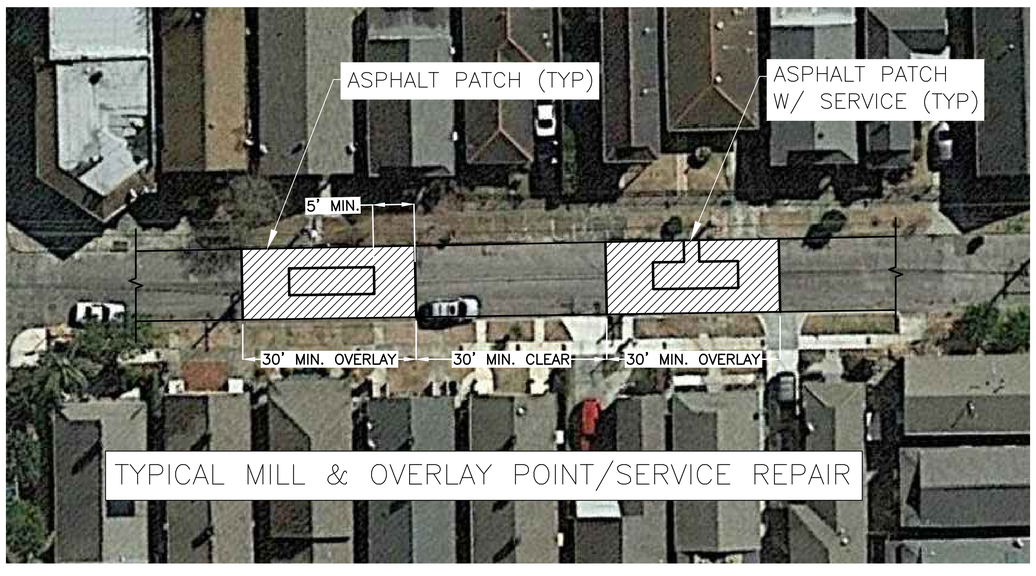
CITY OF NEW ORLEANS, LOUISIANA
BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031
TM005–BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM
4500 EDEN ST

DEPARTMENT OF PUBLIC WORKS



DETAIL A

MILL AND OVERLAY SCHEDULE							
#	LINE SEGMENT	BLOCK	STREET	FULL BLOCK	INTERSECTION	PATCHES	TOTAL (SY)
1	134-032/134-031	4400	EDEN ST			1 x 26' x 30'	86.7
2	135-024/134-031	4500	EDEN ST	875.3	418.2 (S RENDON ST)		1293.5
						TOTAL	1380.2



DETAIL B

DETAIL C

NOTES:

1. MILL AND OVERLAY OPERATIONS SHALL BE THE FULL THE WIDTH OF THE ROADWAY.
2. ALL COLD MILL AND OVERLAY SHALL BE 2.5 IN. THICK UNLESS OTHERWISE STATED.
3. IF REHABILITATION WORK IS CONDUCTED IN AN INTERSECTION THE MILL AND OVERLAY SHALL EXTEND 20 FT. BEYOND THE PROPERTY LINE IN ALL DIRECTIONS.
4. A MINIMUM OF A 30 FT. LONG/FULL WIDTH MILL AND OVERLAY SHALL BE COMPLETED AT ALL SSERP POINT/SERVICE REPAIRS WITH A MINIMUM OF 5 FT. CLEAR FROM ANY EXCAVATED TRENCH.
5. 30 FT. MINIMUM CLEAR MUST BE MAINTAINED BETWEEN TWO REPAIRS OR THE CONTRACTOR SHALL PERFORM A CONTINUOUS MILL AND OVERLAY.

STATE OF LOUISIANA
Christopher Lee Sanchez
REG. No. 32871
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

10/28/2021

SHEET NUMBER
S-5 of S-7

NO.	DATE	REVISION DESCRIPTION	BY

Stantec

STANTEC
1340 POYDRAS ST. STE 1420, NEW ORLEANS, LA 70112

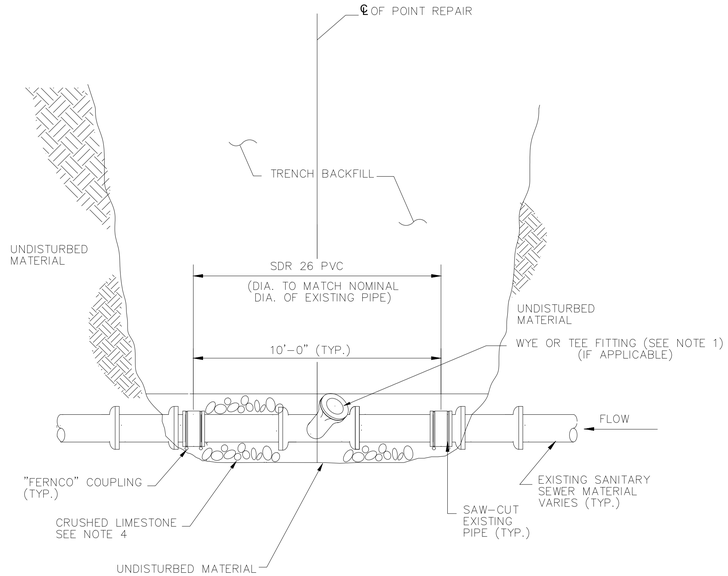
DESIGNED A.D.
CHECKED S.N.
DETAILED
CHECKED

SCALE NTS
DATE
SHEET

CITY OF NEW ORLEANS, LOUISIANA
BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031

TM005–BROADMOOR, FONTAINEBLEAU WATERLINE REPLACMENT PROGRAM

TYPICAL MILL & OVERLAY DETAIL



NOTES :

1. NEW PVC WYE OR TEE FITTINGS, IF APPLICABLE, NEW SERVICE LATERAL TO THE PROPERTY LINE, PVC PIPING BENDS, ADAPTORS, AND OTHER FITTINGS SHALL BE REQUIRED WHEN SERVICE CONNECTIONS ARE LOCATED WITHIN THE LIMITS OF THE POINT REPAIR.
2. DEPTH MEASUREMENT SHALL BE TAKEN AS THE AVERAGE OF THE UPSTREAM INVERT AND THE DOWNSTREAM INVERT AT THE RESPECTIVE MANHOLES MEASUREMENT FROM THE ADJACENT GROUND SURFACE TO THE NEAREST WHOLE FOOT.
3. INVERTS OF NEW PIPE TO MATCH INVERTS OF EXISTING PIPE.
4. REFER TO SEWERAGE AND WATER BOARD STD DETAILS FOR TYPICAL STANDARD TRENCH SECTIONS FOR DETAILED REQUIREMENTS.
5. FOUNDATION LUMBER ONLY TO BE PLACED WHERE EXISTING LUMBER IS REMOVED DURING EXCAVATION.
6. ENDS OF NEW AND EXISTING PIPES SHALL BE CUT SQUARELY PRIOR TO JOINING WITH COUPLING.
7. S&WB AND/OR CONTRACTOR MAY EXTEND THE POINT REPAIR UP TO A TOTAL OF 12 LINEAR FEET, INCLUSIVE OFF SERVICE FITTINGS, AT NO ADDITIONAL COST TO THE CONTRACT.
8. THE MINIMUM LENGTH OF PVC PIPE ON EITHER SIDE OF A SERVICE WYE IS 3-FEET.

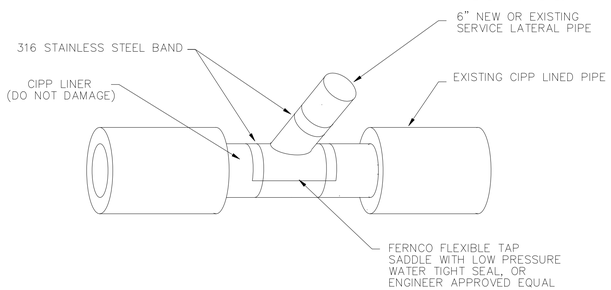
POINT REPAIR DETAIL

N.T.S.

1

NOTES :

1. DETAIL SHALL APPLY TO SERVICE REPAIRS ON ALREADY CIPP LINED PIPES ONLY.
2. CAREFULLY REMOVE EXISTING WYE FROM AROUND THE LINER, IF NECESSARY, GRIND THE PERIMETER OF THE LINER OPENING TO REMOVE JAGGED EDGES.
3. POSITION THE SADDLE OVER THE LINER OPENING AND ALIGN THE INSIDE SURFACE OF THE FITTING WITH THE LOWER EDGE OF THE OPENING BEFORE TIGHTENING THE STAINLESS STEEL BANDS.
4. ONCE THE FITTING IS CORRECTLY IN PLACE, INSTALL THE PRESSURE KIT AND VERIFY THAT EACH BAND HAS BEEN PROPERLY TIGHTENED.



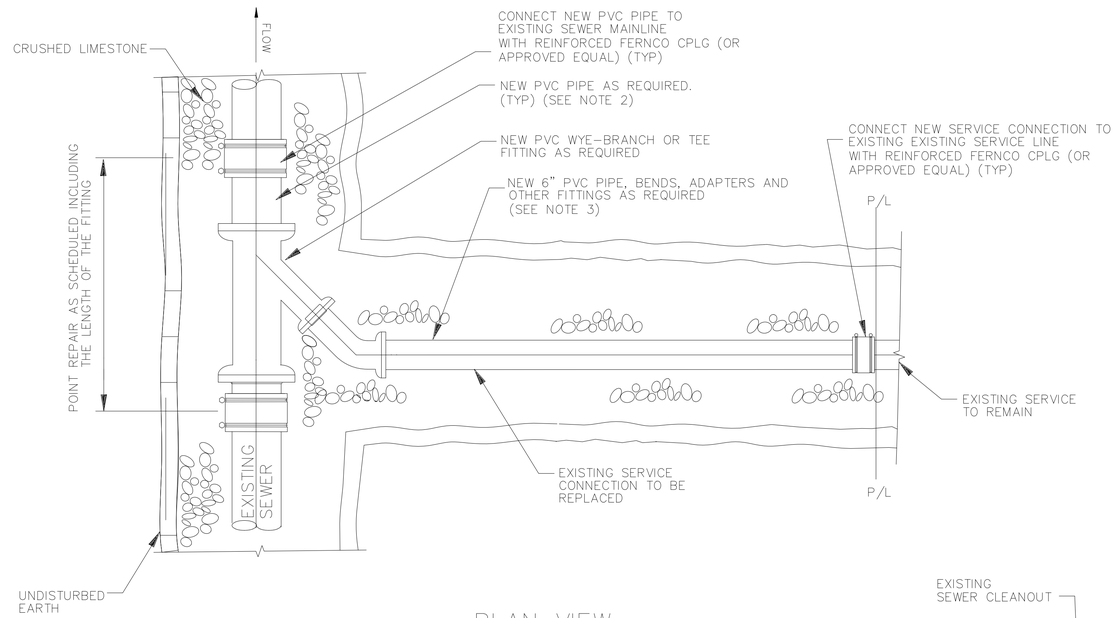
INSTALLATION OF SADDLE ON CURED-IN-PLACE LINED PIPE

N.T.S.

2

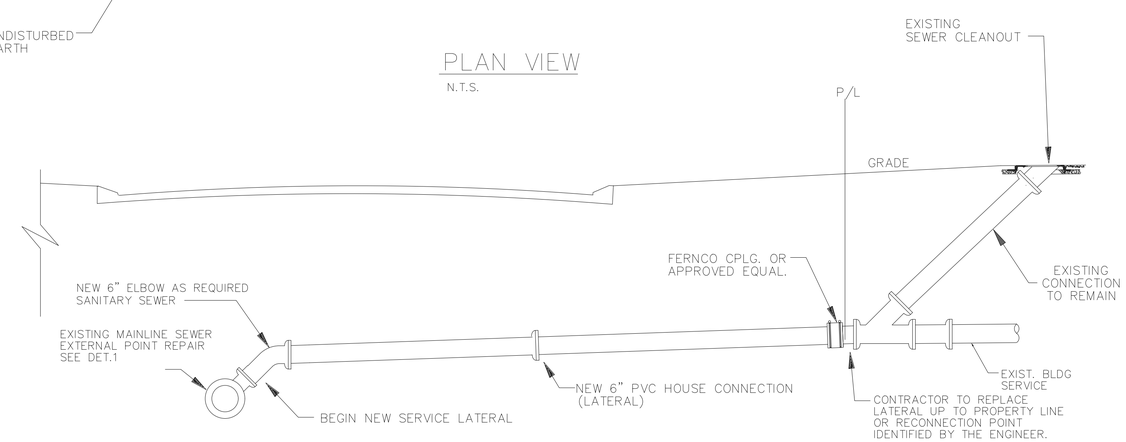
NOTES :

1. WYE OR TEE REPLACEMENT WITH SAME CONFIGURATION.
2. REPLACE SCHEDULED PORTION OF MAINLINE WITH NEW SDR 26 PVC PIPING, INCLUDING THE LENGTH OF THE WYE OR TEE FITTING SHALL BE REQUIRED TO COMPLETE THE CONNECTION.
3. REPLACE THE FULL LENGTH OF THE SERVICE LATERAL WITH NEW PVC PIPING AND FITTINGS, FROM THE MAINLINE TO THE PROPERTY LINE.
4. DEPTH MEASUREMENT SHALL BE TAKEN AS THE AVERAGE OF THE UPSTREAM INVERT AND THE DOWNSTREAM INVERT AT THE RESPECTIVE MANHOLES MEASUREMENT FROM THE ADJACENT GROUND SURFACE TO THE NEAREST WHOLE FOOT.
5. INVERTS OF NEW PIPE TO MATCH INVERTS OF EXISTING PIPE.
6. ENDS OF NEW AND EXISTING PIPES SHALL BE CUT SQUARE PRIOR TO JOINING TO COUPLING.
7. REFER TO SEWERAGE AND WATER BOARD STD DETAILS FOR TYPICAL STANDARD TRENCH SECTIONS FOR DETAILED REQUIREMENTS.



PLAN VIEW

N.T.S.



PROFILE VIEW

N.T.S.

6" LATERAL REPLACEMENT DETAILS (NEW OR EXISTING)

NOTE:
THE "POINT REPAIR" AND "SERVICE REPAIR" STATION LIMITS SHOWN ON THE SEWER DRAWINGS ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE THE ACTUAL LIMITS OF THE POINT REPAIR AND SERVICE REPAIR PRIOR TO PERFORMING SEWER REHABILITATION WORK. ADDITIONAL POINT REPAIR LENGTHS WILL NOT BE MEASURED AND PAID FOR CONTRACTOR'S FAILURE TO FIELD LOCATE AND ADJUST THE WORK.

3

STATE OF LOUISIANA
Christopher Lee Sanchez
REG. No. 32878
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

10/28/2021

SHEET NUMBER
S-6 OF S-7

NO.	DATE	REVISION DESCRIPTION	BY

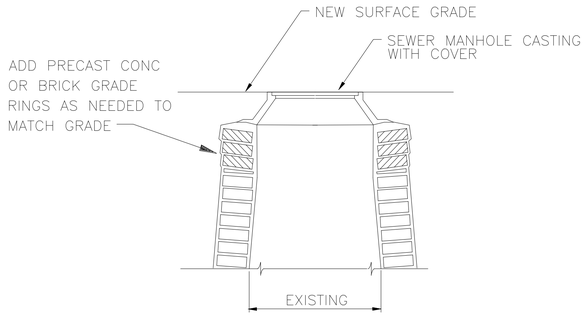
Stantec

STANTEC
1340 POYDRAS ST, STE 1420, NEW ORLEANS, LA 70112

DESIGNED	A.D.	SCALE	NTS
CHECKED	S.N.		
DETAILED		DATE	
CHECKED		SHEET	

CITY OF NEW ORLEANS, LOUISIANA
BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031
TM005-BROADMOOR, FONTAINEBLEAU WATERLINE REPLACMENT PROGRAM
SSERP DETAILS

DEPARTMENT OF PUBLIC WORKS

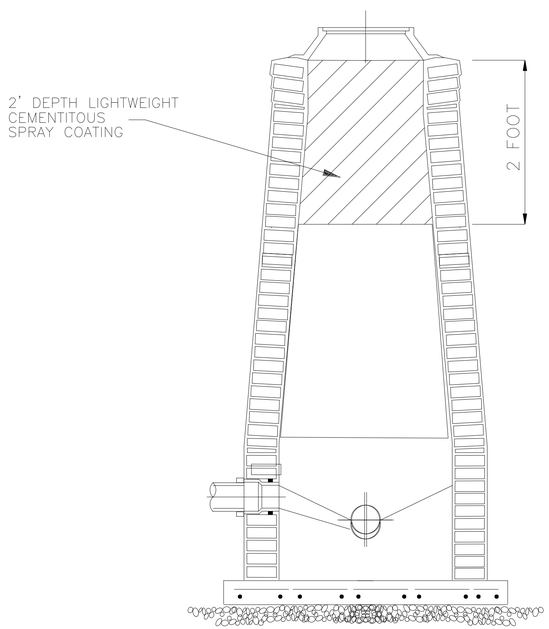


ADJUST OR REPLACE EXISTING MANHOLE FRAME AND COVER

NTS

4

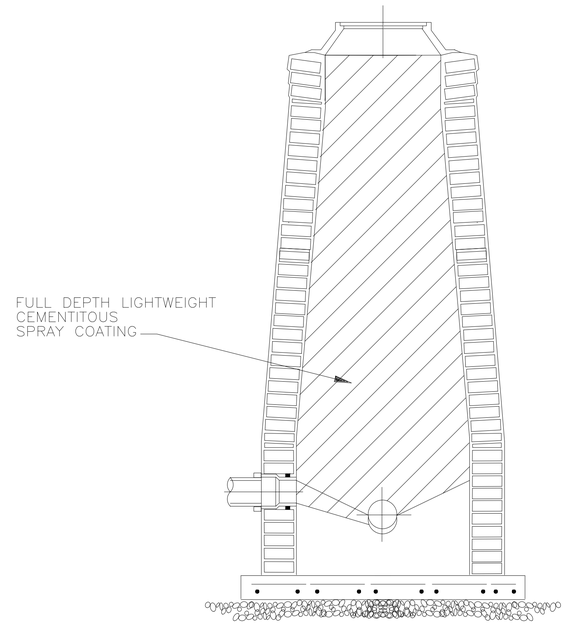
NOTE:
LOCATION OF LINER MAY BE FIELD ADJUSTED UPON INSPECTION



MANHOLE REHABILITATION PARTIAL DEPTH

N.T.S.

5



MANHOLE REHABILITATION FULL DEPTH

N.T.S.

6

STATE OF LOUISIANA
Christopher Lee Sanchez
REG. NO. 32878
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

10/28/2021

SHEET NUMBER
S-7 OF S-7

NO.	DATE	REVISION DESCRIPTION	BY

Stantec

STANTEC
1340 POYDRAS ST, STE 1420, NEW ORLEANS, LA 70112

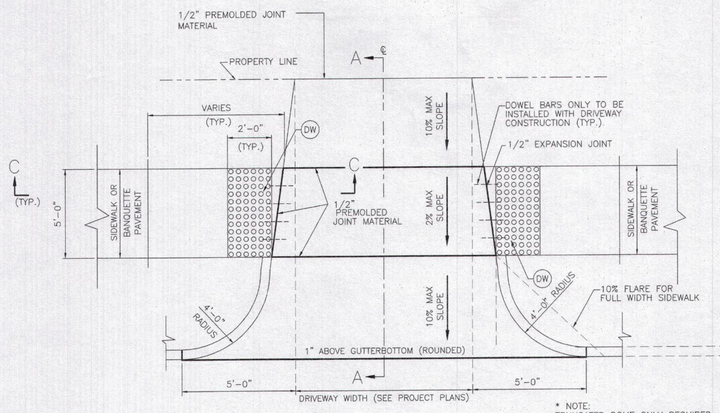
DESIGNED	A.D.	SCALE	NTS
CHECKED	S.N.	DATE	
DETAILED		SHEET	
CHECKED			

CITY OF NEW ORLEANS, LOUISIANA
BROADMOOR, FONTAINEBLEAU WATERLINE REPLACEMENT PROGRAM PROJECT NO. PW 21031

TM005–BROADMOOR, FONTAINEBLEAU WATERLINE REPLACMENT PROGRAM

SSERP DETAILS

DEPARTMENT OF PUBLIC WORKS

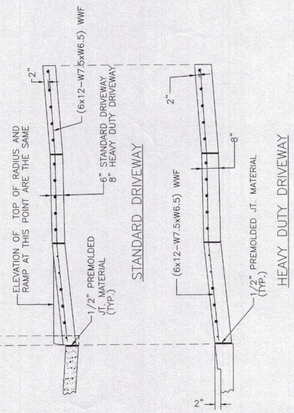


DETAIL OF STANDARD DRIVEWAY FOR CONCRETE VERTICAL CURB

N.T.S.

* NOTE:
TRUNCATED DOME ONLY REQUIRED AT SIGNALIZED COMMERCIAL DRIVE CROSSING ONLY!

* SEE ADA2 FOR LAYOUT.



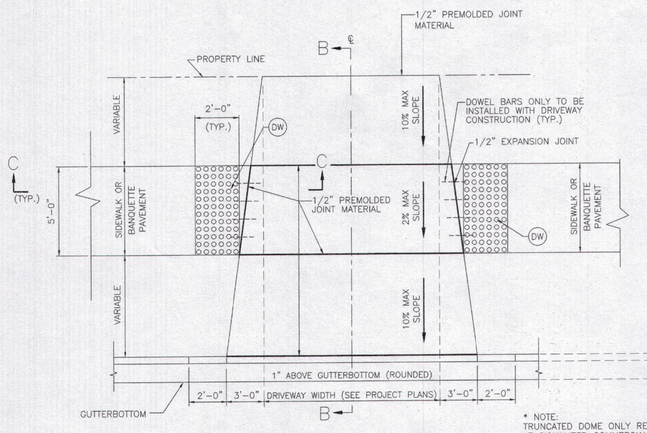
SECTION A–A

N.T.S.

NOTES (*):

(1) FOR STANDARD DRIVEWAYS: DEPRESS ONLY WHEN DIRECTED BY THE FIELD ENGINEER.
(2) FOR HEAVY DUTY DRIVEWAYS: DEPRESS 3" AS SHOWN.
(3) MAXIMUM DRIVEWAY SLOPE IS 10%. ANYTHING EXCEEDING 10% SHOULD BE APPROVED BY THE DEPARTMENT.
(4) DETECTABLE WARNINGS, i.e. RAISED TRUNCATED DOMES SHALL BE USED AT SIGNALIZED COMMERCIAL DRIVEWAYS ONLY.
(5) RAISED TRUNCATED DOMES SHALL BE 0.9 INCHES IN NOMINAL DIAMETER, 0.2 INCHES IN NOMINAL HEIGHT, AND CENTERED 2.35 INCHES APART. THE AREA REQUIRED TO HAVE A DETECTABLE WARNING SHALL VISUALLY CONTRAST IN COLOR AND SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. (PROWAG, LATEST ED.)
(6) RAISED TRUNCATED DOMES SHALL BE 24" x 48" (MIN.) SYSTEMS. THE TILE TYPE, SIZE, SHAPE, INSTALLATION METHODS, ETC., MUST BE APPROVED BY THE D.P.W. BEFORE THE CONTRACTOR ORDERS HIS MATERIALS.
(7) MAINTAIN SIDEWALK ELEVATION THRU DRIVEWAYS.

(DW) DETECTABLE WARNINGS (DARK GREY) (ADA) TRUNCATED DOME TILE (TYP.) AS PER APPROVAL OF D.P.W. SEE NOTES (4) THRU (6).

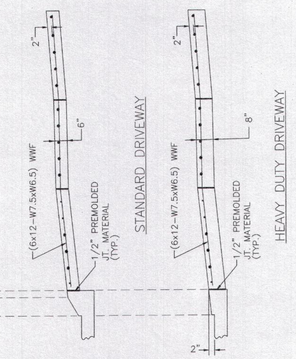


DETAIL OF STANDARD DRIVEWAY FOR MOUNTABLE CURBS

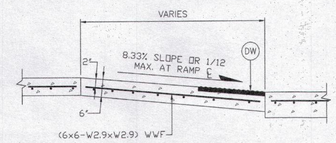
N.T.S.

* NOTE:
TRUNCATED DOME ONLY REQUIRED AT SIGNALIZED COMMERCIAL DRIVE CROSSING ONLY!

* SEE ADA2 FOR LAYOUT.

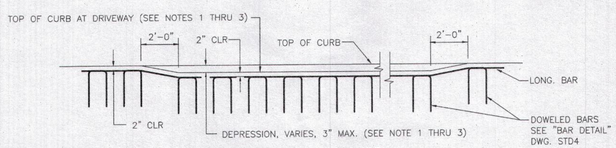


SECTION B–B
STANDARD & HEAVY DUTY DRIVEWAYS
N.T.S.



SECTION C–C

N.T.S.



FRONT VIEW OF CURB

DETAIL OF HEAVY DUTY DRIVEWAYS FOR MOUNTABLE CONCRETE CURB

N.T.S.

THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

STANDARD DRIVEWAYS FOR STREET CONSTRUCTION

DRAWN BY:	REVIEWED BY:			RECOMMENDED BY:
J. LARMEU	M.T.	B.V.	R.S. B.J. A.Y.	NGUYEN D. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE: AS NOTED			APPROVED: MARK D. JERNIGAN, DIRECTOR

DRAWING No.

DW1

SHEET NUMBER
201 of 209

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065
(504) 467-9693

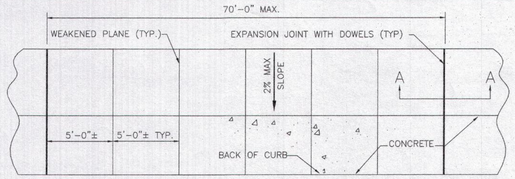
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	201

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

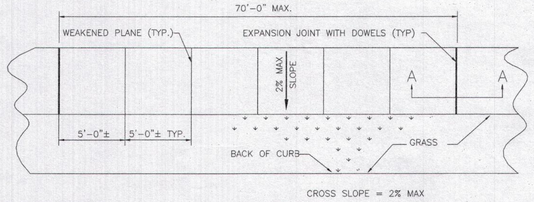
DPW STANDARD DRAWINGS

DWG PATH: S:\V 660_) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_201-209_DPW LAYOUT TAB: 201 DATE of PLOT: Friday, November 05, 2021 @ 9:53am



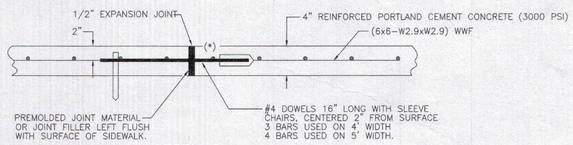
PLAN PORTLAND CEMENT CONCRETE SIDEWALK PAVEMENT (FULL)

N.T.S.

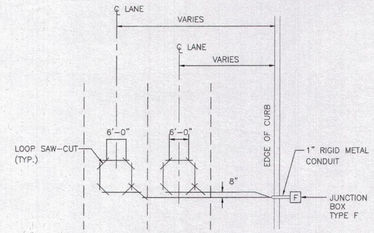


PLAN PORTLAND CEMENT CONCRETE SIDEWALK PAVEMENT (RIBBON)

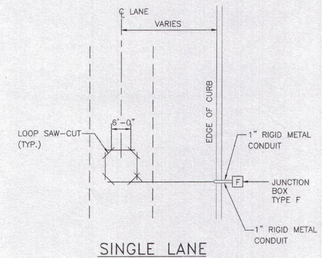
N.T.S.



SECTION A–A (*) THIS HALF OF DOWEL SHALL BE GREASED



DOUBLE LANE

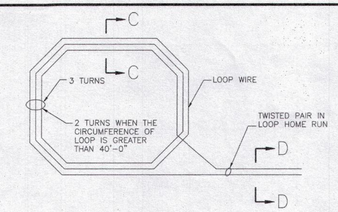


SINGLE LANE

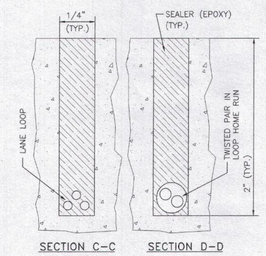
NOTE:

THE CONTRACTOR SHALL PROVIDE ONE INCH CONDUIT FROM JUNCTION BOX OR EQUIPMENT CABINET AND TERMINATE BELOW TOP OF PAVEMENT SO THAT IT DIRECTLY RECEIVES LOOP LEAD-IN WIRE.

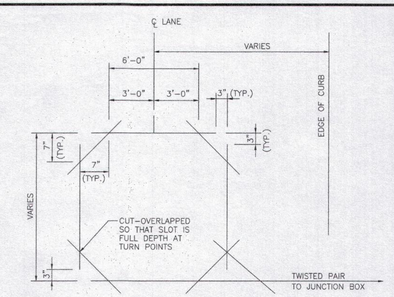
TYPICAL LOOP SAW-CUT LAYOUT



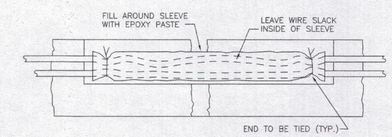
LOOP WIRE INSTALLATION



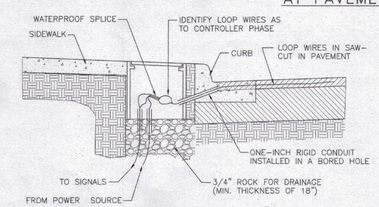
VEHICLE LOOP INSTALLATION



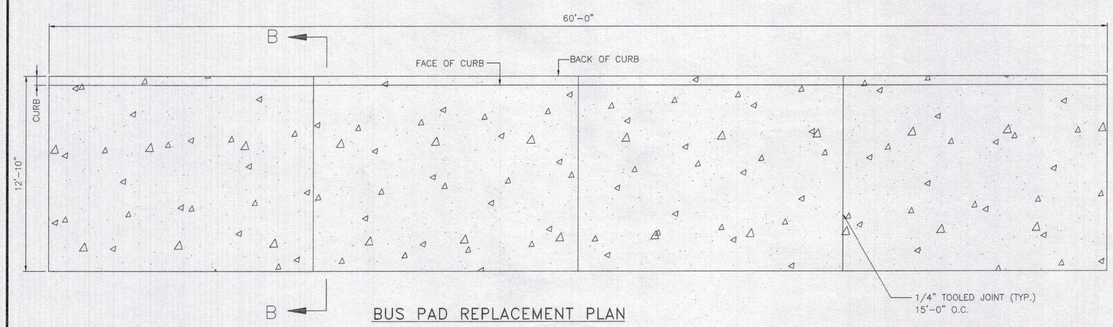
LOOP SAW-CUT CONFIGURATION



SECTION OF PLASTIC SLEEVING AT PAVEMENT JOINTS AND CRACKS

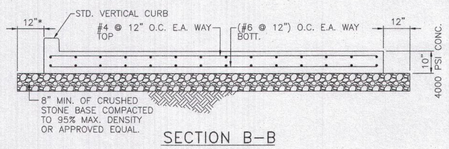


TYPICAL LOOP LEAD-IN INSTALLATION



BUS PAD REPLACEMENT PLAN

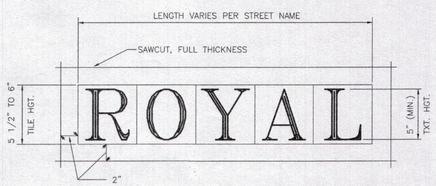
N.T.S.



SECTION B–B

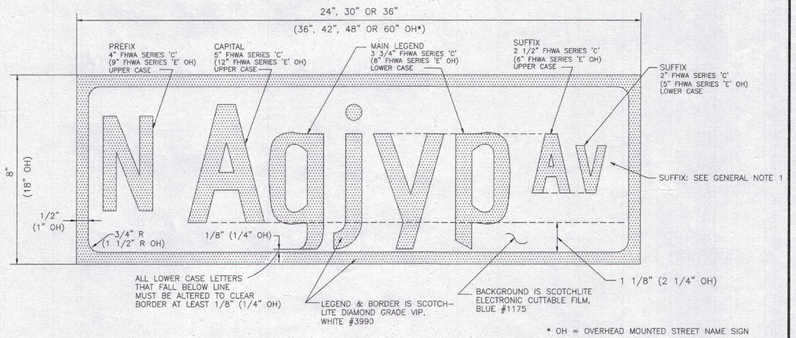
N.T.S.

(*) DELETE WITHIN DRIPLINE OF TREES



STREET NAME TILE

N.T.S.



STREET NAME SIGN – LEGEND & BORDER

N.T.S.

GENERAL NOTES:

(1) IF STREET NAME SUFFIX IS "STREET", SUFFIX IS OMITTED FROM SIGN.

(2) REPLACEMENT STREET NAME TILES SHALL BE SET IN A 1/4"-1/2" MORTAR BED WITH A 1/4" (MAX. SPACING) BETWEEN LETTERS.

THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

MISCELLANEOUS DETAILS FOR STREET CONSTRUCTION

DRAWN BY:	REVIEWED BY:	RECOMMENDED BY:
N. SCHNEIDER	M.T. B.V. R.S. A.Y. L.H.	NGUYEN D. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE: AS NOTED	APPROVED: MARK D. JERNIGAN, DIRECTOR

DRAWING No. MC1

NO.	DATE	REVISION DESCRIPTION	BY

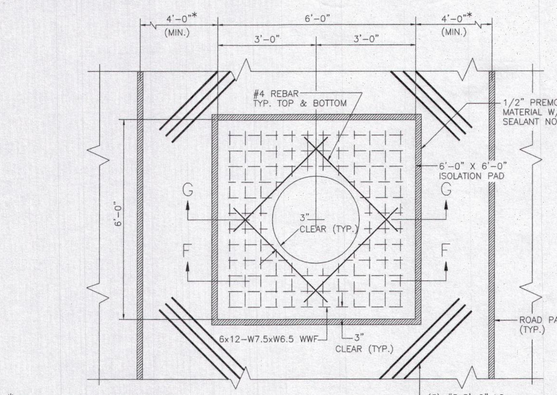
digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	202

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

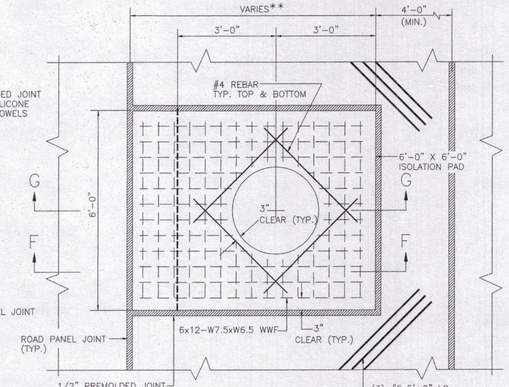
DPW STANDARD DRAWINGS



* ISOLATION PAD MUST HAVE A MINIMUM OF 4'-0" FROM ISOLATION PAD TO ROAD PANEL JOINT.

MAN-HOLE CASE (1)

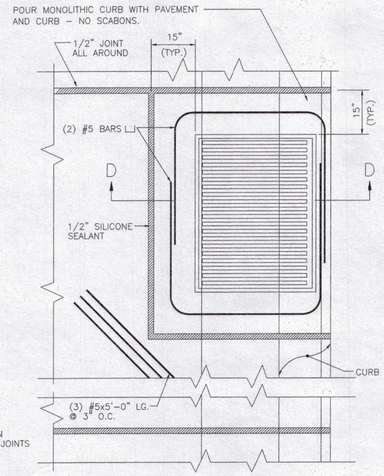
N.T.S.



** IF ISOLATION PAD FALLS LESS THAN 4'-0" FROM ROAD PANEL JOINT INCREASE ISOLATION PAD LENGTH AS REQUIRED TO COMBINE THE JOINTS

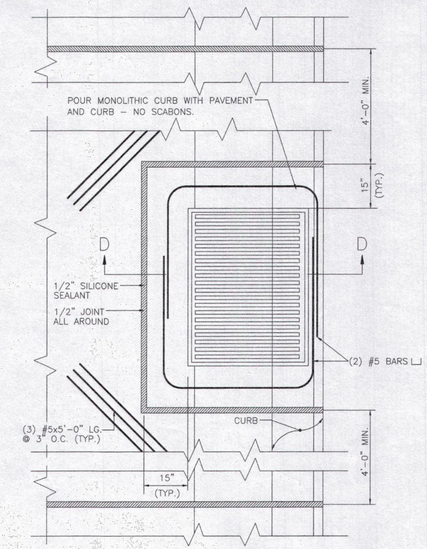
MAN-HOLE CASE (2)

N.T.S.



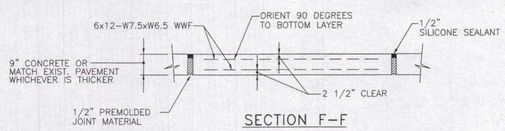
ROLL-OVER CATCH BASIN PLACEMENT CASE (1)

N.T.S.



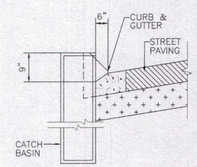
ROLL-OVER CATCH BASIN PLACEMENT CASE (2)

N.T.S.



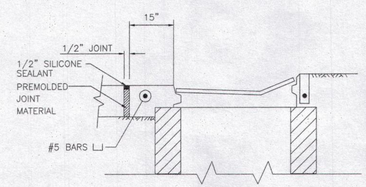
SECTION F-F

N.T.S.



SECTION C-C

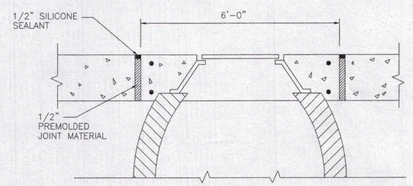
N.T.S.



SECTION D-D

JOINT DETAIL AT ROLL-OVER BASIN

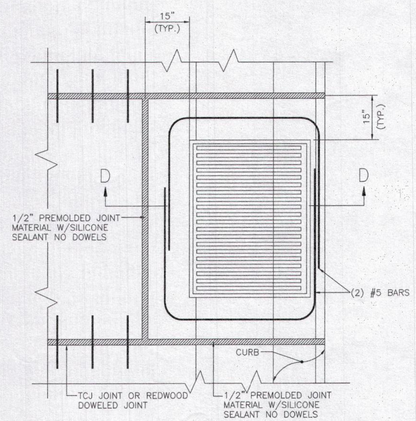
N.T.S.



SECTION G-G

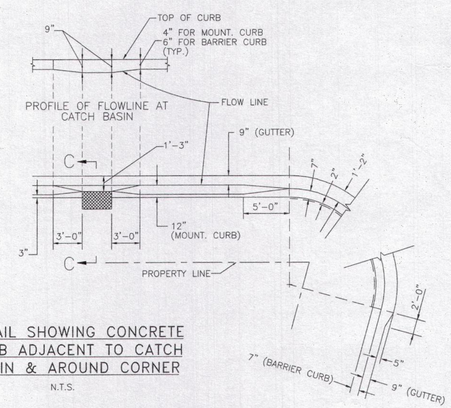
MANHOLE ISOLATION PAD

N.T.S.



ROLL-OVER CATCH BASIN PLACEMENT CASE (3)

N.T.S.



DETAIL SHOWING CONCRETE CURB ADJACENT TO CATCH BASIN & AROUND CORNER

N.T.S.

NOTES:

1.) EACH UTILITY STRUCTURE WITHIN THE ROADWAY SHALL HAVE IT'S ISOLATION PAD.

THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

MISCELLANEOUS DETAILS FOR CATCH BASIN, MANHOLE & UTILITIES INSTALLATION

DRAWN BY:	REVIEWED BY:			RECOMMENDED BY:
N. SCHNEIDER	M.T.	B.V.	R.S. B.J.	A.Y.
DATE: 2/3/2015	SCALE: AS NOTED			APPROVED: MARK D. JEROMON, DIRECTOR

NGUYEN K. PHAN, CHIEF ENGINEER

DRAWING No.

MC2

SHEET NUMBER
203 of 209

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
527 W. ESPLANADE AVE., STE. 200
KENNER, LOUISIANA 70065
DIGITAL ENGINEERING & IMAGING, INC.
CERTIFICATE OF AUTHORIZATION NO. 2000

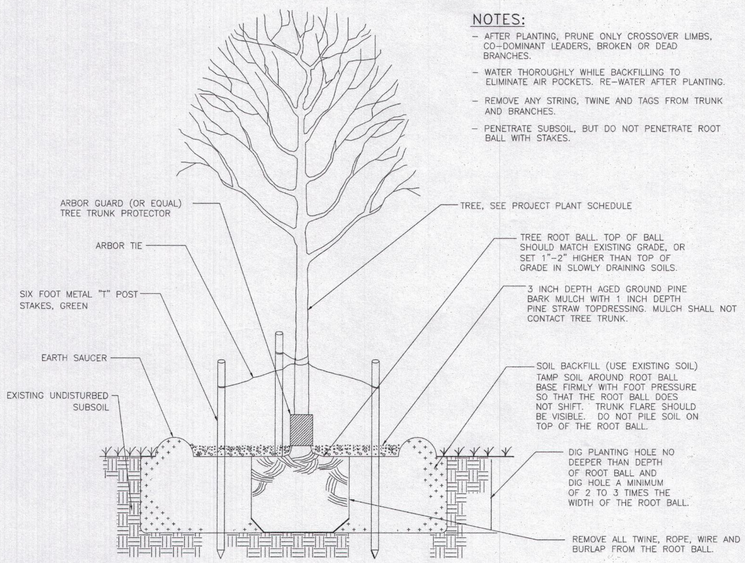
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	203

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

DPW STANDARD DRAWINGS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_201-209_DPW LAYOUT TAB: 203 DATE of PLOT: Friday, November 05, 2021 @ 9:53am

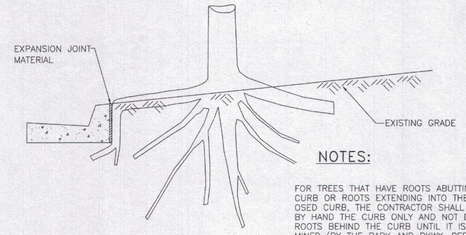


NOTES:

- AFTER PLANTING, PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, BROKEN OR DEAD BRANCHES.
- WATER THOROUGHLY WHILE BACKFILLING TO ELIMINATE AIR POCKETS. RE-WATER AFTER PLANTING.
- REMOVE ANY STRING, TWINE AND TAGS FROM TRUNK AND BRANCHES.
- PENETRATE SUBSOIL, BUT DO NOT PENETRATE ROOT BALL WITH STAKES.

TREE PLANTING DETAIL

N. T. S.



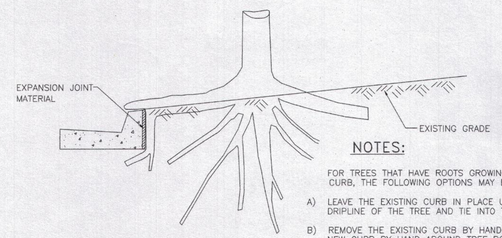
NOTES:

FOR TREES THAT HAVE ROOTS ABUTTING THE CURB OR ROOTS EXTENDING INTO THE PROPOSED CURB, THE CONTRACTOR SHALL REMOVE BY HAND THE CURB ONLY AND NOT DISTURB TREE ROOTS BEHIND THE CURB UNTIL IT IS DETERMINED (BY THE PARK AND PKWY. DEPARTMENT) HOW MUCH OF THE ROOTS CAN BE PRUNED. ONCE MARKED, THE ROOTS CAN BE PRUNED BY A LICENSED ARBORIST. ELIMINATE 12" OF ROADWAY BASE BEHIND NEW CURB WHERE ROOTS ARE ENCOUNTERING THE CURB. (SEE DETAIL "A")

TYPICAL DIAGRAM NO. 1

TREE ROOTS GROWING BEHIND EXISTING OR PROPOSED CURBS

N. T. S.



NOTES:

FOR TREES THAT HAVE ROOTS GROWING OVER THE CURB, THE FOLLOWING OPTIONS MAY BE POSSIBLE:

A) LEAVE THE EXISTING CURB IN PLACE UNDER THE DRIPLINE OF THE TREE AND TIE INTO THE NEW CURB.

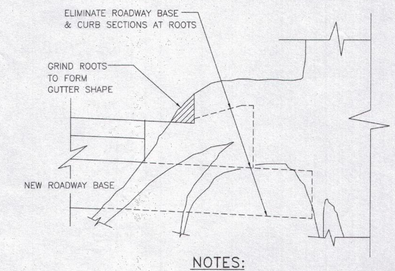
B) REMOVE THE EXISTING CURB BY HAND AND FORM NEW CURB BY HAND AROUND TREE ROOTS WITHOUT ROOT PRUNING.

C) REMOVE THE EXISTING CURB BY HAND, PRUNE ROOTS AS MARKED BY THE DEPARTMENT OF PARKS & PARKWAYS. FORM AND POUR NEW CURB.

TYPICAL DIAGRAM NO. 2

TREE ROOTS GROWING OVER CURB

N. T. S.



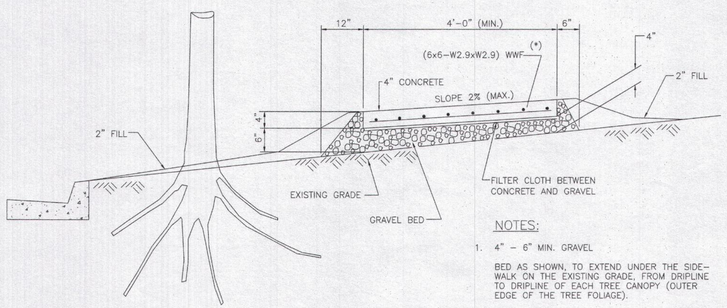
NOTES:

WHERE BIG ROOTS EXTEND INTO ROADWAY SECTION, ELIMINATE ROADWAY BASE AND CURB SECTIONS AT ROOTS, AND GRIND ROOTS TO FORM GUTTER SHAPE MATCHING ADJOINING CONCRETE GUTTERS AS PER DIRECTION OF THE DEPARTMENT OF PARKS & PARKWAYS

TYPICAL DIAGRAM NO. 3

TREE ROOTS EXTENDING INTO PROPOSED ROADWAY SECTION

N. T. S.



NOTES:

1. 4" – 6" MIN. GRAVEL

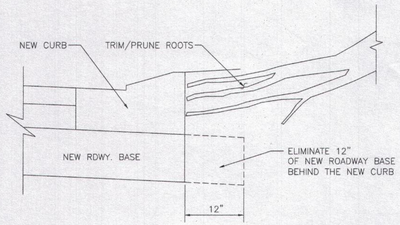
   BED AS SHOWN, TO EXTEND UNDER THE SIDEWALK ON THE EXISTING GRADE, FROM DRIPLINE TO DRIPLINE OF EACH TREE CANOPY (OUTER EDGE OF THE TREE FOLIAGE).
2. NO MORE THAN 1.5" – 2.0" OF FILL TO BE PLACED UNDER ANY TREE CANOPY.
3. NO EXPANSION JOINTS TO BE PLACED OVER ROOTS. ONLY "WEAKENED PLANES" SHALL BE ALLOWED.

(*) WITH 1.5" – 2.0" COVER

SIDEWALK GRAVEL BED

REQ'D. AT EACH TREE LOCATION

N. T. S.



DETAIL "A"

DETAIL FOR ROOT PRUNING AT CURBS

REFER TO "TYPICAL DIAGRAM NO. 1"

N.T.S.

GENERAL NOTES:

(1) THE CONTRACTOR IS RESPONSIBLE FOR HIRING A LICENSED ARBORIST TO PRUNE TREE ROOTS ON CITY TREES. ALL TREE ROOTS OF CITY OWNED TREES, DAMAGED DURING REMOVAL OF CURBS, SIDEWALKS AND DRIVEWAYS SHALL BE ROOT PRUNED. ALL TREE ROOTS DAMAGED DURING ANY EXCAVATION OPERATIONS, YARD DRAINS, COLLECTOR LINES, ETC. SHALL BE ROOT PRUNED.

(2) ALL PROJECTS REQUIRE ON-SITE INSPECTION BY THE DEPARTMENT OF PARKS & PARKWAYS AND THE ARBORIST TO DETERMINE THE EXTENT OF ROOT PRUNING THAT WILL BE REQUIRED OR ALLOWED.

(3) FERTILIZATION – ONLY IF SPECIFIED BY DEPARTMENT OF PARKS & PARKWAYS ARBORIST, THE TREE ROOTS PRUNED DUE TO CONSTRUCTION SHALL BE FERTILIZED USING A WATER SOLUBLE FERTILIZER INJECTED INTO THE SOIL. THE MINIMUM ACCEPTABLE N-P-K RATIO SHALL BE 30-5-5. THE NUTRIENT COMPLEX AND RATIO (GAL/SQ. FT.) MUST BE APPROVED BY THE URBAN FORESTER OVERSEEING THE PROJECT.

(4) ONLY IF SPECIFIED BY THE DEPARTMENT OF PARKS & PARKWAYS, MYCOORHIZAL FUNGAL INOCULATE TREATMENT SHALL BE APPLIED TO CONSTRUCTION DAMAGED TREE ROOT ZONES AS APPROVED BY THE URBAN FORESTER FROM THE PARK AND PARKWAYS DEPARTMENT.

(5) TERMITE TREATMENT – ALL TREE ROOTS PRUNED DUE TO CONSTRUCTION SHALL BE TREATED FOR TERMITES WITH A TERMITICIDE APPROVED BY THE URBAN FORESTER.

(6) ALL TREES SHALL BE IRRIGATED AND MULCHED AS INDICATED IN THE SECTION 02480, "LANDSCAPE PROTECTION DURING CONSTRUCTION".

(7) ONLY IF SPECIFIED BY THE DEPARTMENT OF PARKS & PARKWAYS, CAMBISTAT GROWTH REGULATOR OR EQUIVALENT SHALL BE APPLIED TO THE TREES AS PER THE DIRECTION OF THE URBAN FORESTER OVERSEEING THE PROJECT.

THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

MISCELLANEOUS DETAILS FOR TREE PLANTING & ROOT PRUNING

DRAWN BY:	REVIEWED BY:	RECOMMENDED BY:
N. SCHNEIDER	M.T. B.V. R.S. B.J. A.Y.	NGUYEN D. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE: AS NOTED	APPROVED: MARK C. JEROMAN, DIRECTOR

DRAWING No.

MC3

SHEET NUMBER
204 of 209

NO.	DATE	REVISION DESCRIPTION	BY

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PHONE: 504.466.1601 FAX: 504.466.1602

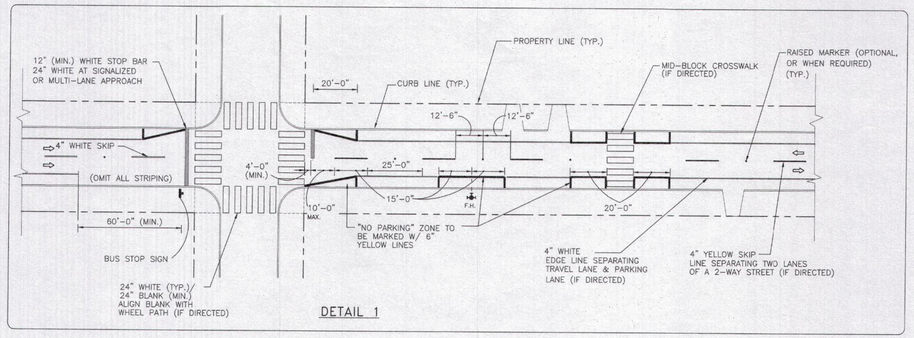
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC
CHECKED	RJD/AKW
DETAILED	MEP/MSC
CHECKED	FTL/AKW
SCALE	AS NOTED
DATE	OCTOBER 2021
SHEET	204

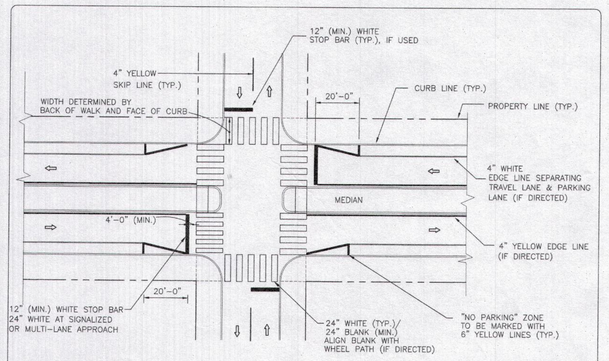
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

DPW STANDARD DRAWINGS

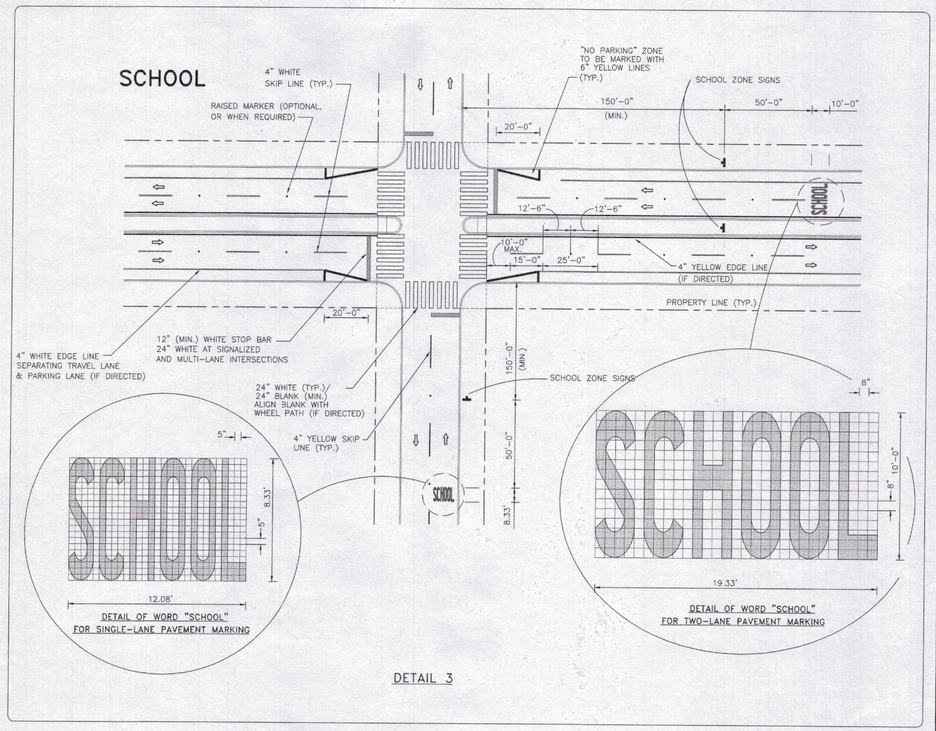
DWG PATH: S:\(660) NOSWB\660-0300.01 CC. Broadmoor, Fountainbleau TM\20 Design\CAD\
DWG NAME: 660-0300.01_201-209_DPW LAYOUT TAB: 204 DATE of PLOT: Friday, November 05, 2021 @ 9:54am



DETAIL 1

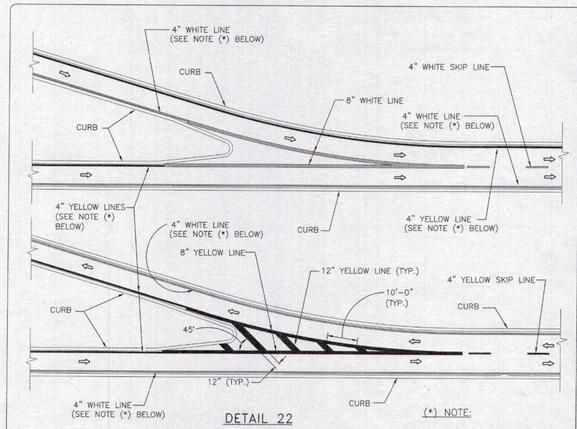


DETAIL 2



DETAIL 3

DESCRIPTION	COLOR	WIDTH	APPLICATION
SINGLE BROKEN	WHITE	4"	SEPARATION OF TRAVEL LANES IN THE SAME DIRECTION; INDICATE THAT IT IS PERMISSIBLE TO CROSS THE LINE TO CHANGE LANES; i. e., LANE LINES ON MULTILANE ROADWAYS.
	YELLOW	4"	SEPARATION OF TRAVEL LANES IN OPPOSITE DIRECTIONS; INDICATE THAT PASSING IS ALLOWED IN BOTH DIRECTIONS; i. e., CENTERLINE ON TWO LANE, TWO WAY ROADWAYS.
SINGLE SOLID	WHITE	4"	SEPARATION OF TRAVEL LANES OR SEPARATION OF TRAVEL LANE AND SHOULDER; INDICATE THAT CROSSING THE LINE IS DISCOURAGED; i. e., LANE LINES AT INTERSECTION APPROACHES OR RIGHT EDGE LINES.
		6"	SEPARATION OF A MOTOR VEHICLE TRAVEL LANE FROM A BIKE TRAVEL LANE.
		8"	DELINEATION OF LOCATION WHICH INDICATES CROSSING IS STRONGLY DISCOURAGED; i. e., SEPARATION OF TURN LANES FROM THROUGH LANES OR GORE AREAS AT RAMP TERMINALS.
	YELLOW	4"	DELINEATION OF LEFT EDGE LINES ON DIVIDED ROADWAYS, ONE-WAY ROADS AND RAMPS.
DOUBLE SOLID	WHITE	4"-4"-4"	SEPARATION OF TRAVEL LANES IN THE SAME DIRECTION; INDICATE THAT IT IS PROHIBITED TO CROSS THE LINES; e. g., PROHIBIT LANE CHANGES ON THE APPROACH TO AN OBSTRUCTION IN THE ROADWAY BETWEEN TWO LANES IN THE SAME DIRECTION
	YELLOW	4"-4"-4"	SEPARATION OF TRAVEL LANES IN OPPOSITE DIRECTIONS, WHICH INDICATE THAT PASSING IS NOT ALLOWED IN EITHER DIRECTION. LEFT TURN MANEUVERS ACROSS THIS MARKING ARE PERMITTED. ALSO USED IN ADVANCE OF OBSTRUCTIONS WHICH MAY BE PASSED ONLY ON THE RIGHT SIDE.
SOLID PLUS BROKEN	YELLOW	4"-2"-4"	SEPARATION OF TRAVEL LANES IN OPPOSITE DIRECTIONS; INDICATE THAT PASSING IS ALLOWED FOR VEHICLES ADJACENT TO THE BROKEN LINE, BUT PROHIBITED FOR VEHICLES ADJACENT TO SOLID LINE. USED ON TWO-WAY ROADWAYS WITH TWO OR THREE LANES. ALSO USED TO DELINEATE EDGES OF A TWO-WAY LEFT TURN LANES (SOLID ON THE OUTSIDE, BROKEN LINES ON THE INSIDE).
DOUBLE BROKEN	YELLOW	4"-4"-4"	DELINEATES THE EDGES OF REVERSIBLE LANES.
SINGLE DOTTED	BOTH	4"	AN EXTENSION OF A LANE LINE OR CENTERLINE THROUGH AN INTERSECTION OR A CURVED DOTTED LINE THROUGH AN INTERSECTION TO HELP GUIDE TURNING VEHICLES AS THEY MOVE THROUGH THEIR TURN. MAY EXTEND AN EDGELINE, ESPECIALLY WHERE THE ROAD WIDENS FOR AN ADDED LANE FOR DECELERATION OR FOR TURNING.
	WHITE	8"	SEPARATION OF THROUGH LANE AND AUXILIARY LANE OR DROPPED LANE.
TRANSVERSE	WHITE	6"	CROSSWALK EDGE LINES AT MINOR INTERSECTIONS, IF DIRECTED
		12"	STOP BARS AT MINOR INTERSECTIONS CROSSWALK EDGE LINES AT MAJOR INTERSECTIONS, IF DIRECTED
		24"	STOP BARS AT MAJOR INTERSECTIONS HIGH-VISIBILITY, LONGITUDINAL CROSSWALK STRIPING
DIAGONAL	WHITE	12"	CROSSHATCH MARKINGS, PLACED AT AN ANGLE OF 45° AT VARYING DISTANCES APART, ON SHOULDERS OR CHANNELIZATION ISLANDS TO ADD EMPHASIS TO THESE ROADWAY FEATURES.

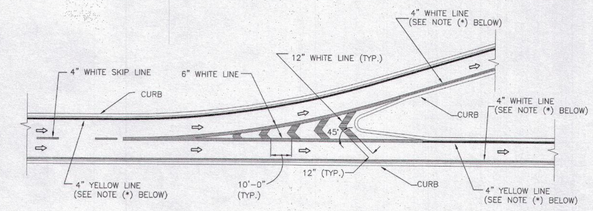


DETAIL 22

TYPICAL GORE MARKINGS
FOR ONE-WAY AND TWO-WAY STREETS

(*) NOTE:

4" WHITE & YELLOW EDGE LINES ARE OPTIONAL FOR CITY'S STREETS



THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

TYPICAL APPLICATION
OF
PAVEMENT MARKINGS

DRAWN BY:	REVIEWED BY:	RECOMMENDED BY:
N. SCHNEIDER	A.Y. L.H.	NGUYEN D. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE AS NOTED	APPROVED MARK V. JERNIGAN, DIRECTOR

DRAWING No.

PM1

SHEET NUMBER
205 of 209

NO.	DATE	REVISION DESCRIPTION	BY

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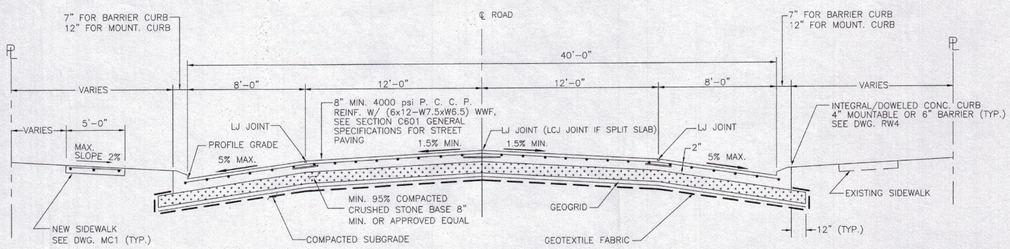
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	205

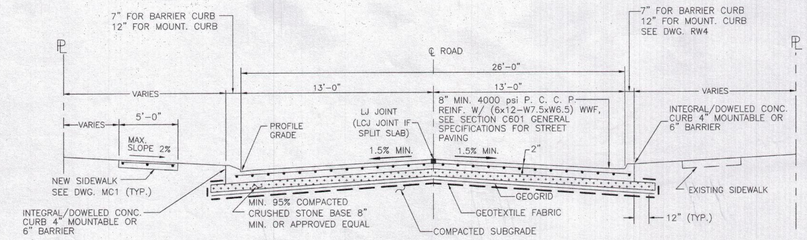
CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

DPW STANDARD DRAWINGS



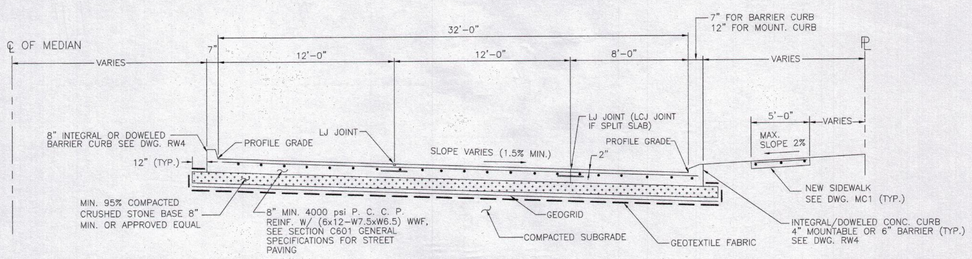
TYPICAL ROADWAY SECTION – 40'-0" RDWY. – P. C. C. P. (REINFORCED)

N.T.S.



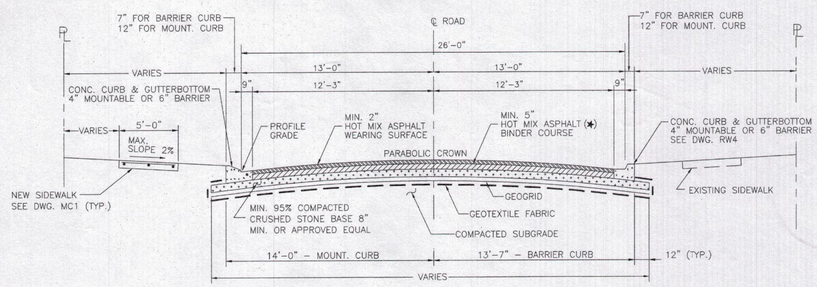
TYPICAL ROADWAY SECTION – 26'-0" RDWY. – P.C.C.P. (REINFORCED)

N.T.S.



TYPICAL HALF SECTION – 32'-0" ROADWAY – P. C. C. P. (REINFORCED)

N.T.S.

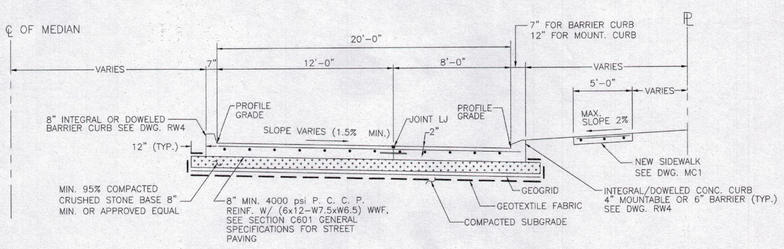


TYPICAL ROADWAY SECTION – 26'-0" RDWY. – ASPHALTIC CONCRETE PAVEMENT

MIN. THICKNESS = 7" TOTAL ASPHALTIC CONCRETE

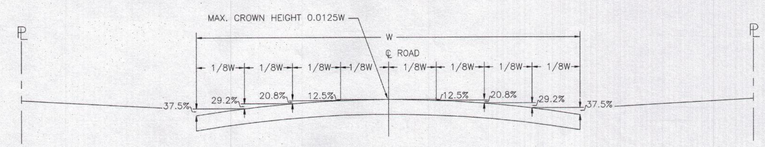
N.T.S.

(✱) PROVIDE TACK COAT(S) BETWEEN ASPHALT LAYER(S)



TYPICAL HALF SECTION – 20'-0" ROADWAY – P. C. C. P. (REINFORCED)

N.T.S.



TYPICAL PARABOLIC CROWN – ASPHALTIC CONCRETE PAVEMENT

N.T.S.

GENERAL NOTES:

(1) NEW SIDEWALK SHALL BE 4" REINFORCED PORTLAND CEMENT CONCRETE 3000 PSI. SIDEWALK SHALL BE 6" REINFORCED P.C.C. AT DRIVEWAYS.
(2) NEW CURB AND GUTTERBOTTOM SHALL BE 4000 PSI REINFORCED PORTLAND CEMENT CONCRETE.
(3) SEE DRAWINGS RW2 AND RW3 FOR JOINT DETAILS AND PLACEMENT.
(4) ROADWAY MAXIMUM SLOPE MUST MEET AASHTO STANDARD.

THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

TYPICAL ROADWAY SECTIONS FOR STREET CONSTRUCTION

DRAWN BY:	REVIEWED BY:				RECOMMENDED BY:
N. SCHNEIDER	M.T.	B.V.	R.S.	B.J.	A.Y.	NGUYEN D. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE: AS NOTED	APPROVED: MARK D. JENKINS, DIRECTOR			

DRAWING No.

RW1

SHEET NUMBER
206 of 209

NO.	DATE	REVISION DESCRIPTION	BY

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DIGITAL ENGINEERING & IMAGING, INC.
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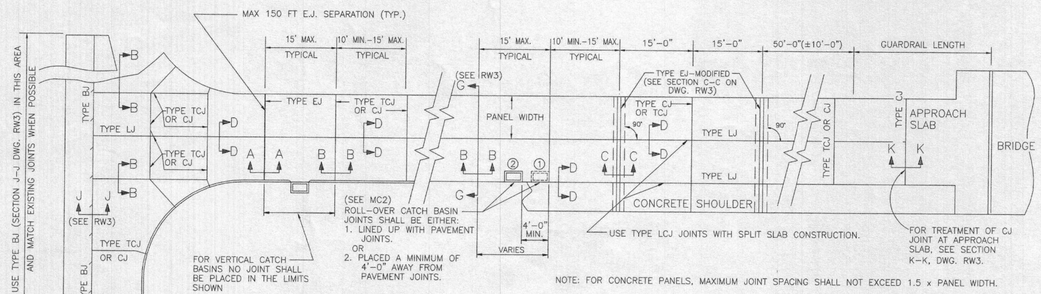
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	206

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

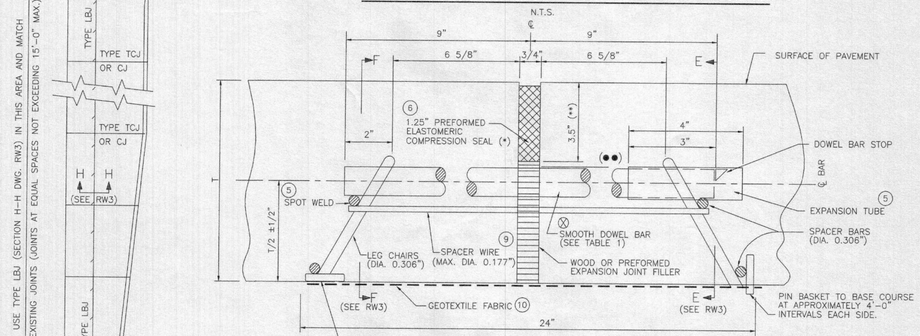
DPW STANDARD DRAWINGS



NOTE: FOR CONCRETE PANELS, MAXIMUM JOINT SPACING SHALL NOT EXCEED 1.5 x PANEL WIDTH.

PLAN VIEW OF TYPICAL ROADWAY SHOWING JOINTS

N.T.S.



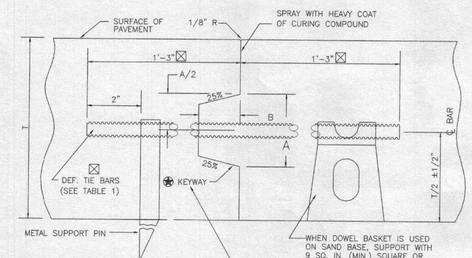
SECTION A-A
TYPE EJ (12)
(TRANSVERSE EXPANSION JOINT)

N.T.S.

(*) APPROVED SILICONE JOINT SEALANT WITH BACKER MATERIAL IS OPTIONAL.
(**) 3" FOR 8" PAVEMENT
(●●) THIS HALF OF DOWEL SHALL BE GREASED.

TABLE 1 (ALL DIMENSIONS IN INCHES)											
PAVEMENT THICKNESS	SMOOTH DOWEL BARS ⊗			DEF. TIE BARS ⊠			MINIMUM DEPTH OF JOINT ◪		KEYWAY ❀		
T ②	SIZE	LENGTH	SPACING	SIZE	LENGTH	SPACING	TCJ & CJ ±1/4"	LJ ±1/4"	A ±1/4"	B ±1/4"	
7 OR LESS	1	18	12	1/2	24	24	2-1/2	2-1/2	ALLOW 7"		
8	1-1/4	18	12	1/2	24	24	3	3	2-1/2	1-1/4	
9	1-1/4	18	12	1/2	24	24	3	3-1/2	2-1/2	1-1/4	
10	1-1/2	18	12	1/2	24	24	3-1/2	4	2-1/2	1-1/4	
11	1-1/2	18	12	5/8	30	24	3-1/2	4	2-1/2	1-1/4	
12	1-1/2	18	12	5/8	30	24	4	4-1/2	3	1-1/2	
13	1-1/2	18	12	5/8	30	24	4	4-1/2	3	1-1/2	
14	1-1/2	18	12	5/8	30	24	4-1/2	5	3	1-1/2	

② FOR CONC. SHOULDERS, " T " IS THE THICKNESS AT PAVEMENT EDGE.



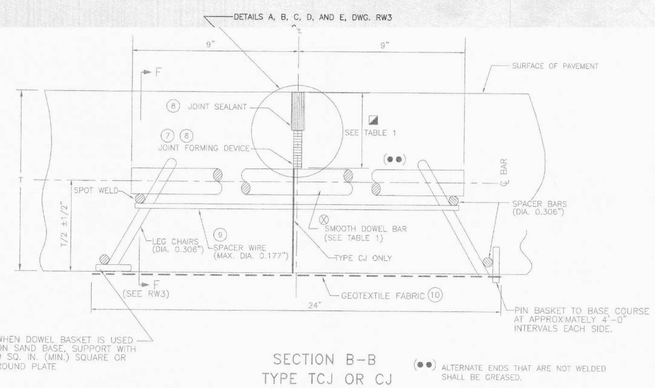
FOR KEYWAY DIMENSIONS A & B SEE TABLE 1. ❀
KEYWAY UTILIZATION SHALL NOT BE ALLOWED FOR PAVEMENT THICKNESS LESS THAN 8".
IN LIEU OF THE KEYWAY, ONE OF THE FOLLOWING OPTIONS WILL BE ALLOWED (FOR ALL CASES):
A. INSTALL TIE BARS OF THE SIZE SHOWN IN TABLE 1 AT 1/2 OF THE SPACING.
B. INSTALL TIE BARS HAVING DIAMETERS 1/4" LARGER THAN THE DIAMETERS SHOWN IN TABLE 1, AT THE SAME SPACING).

TYPE LCJ
(LONGITUDINAL CONSTRUCTION JOINT)

N.T.S.

GENERAL STREET CONSTRUCTION NOTES:

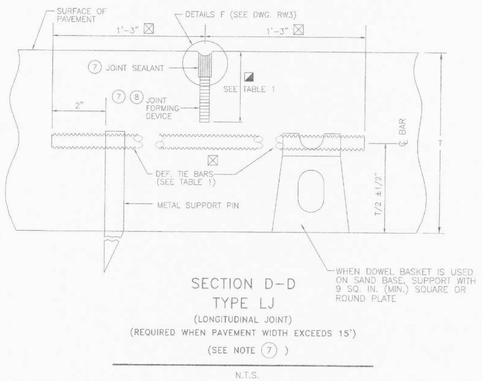
1. PAVEMENT EDGES SHALL BE SLIGHTLY ROUNDED TO APPROXIMATELY 1/4".
2. ASPHALTIC CONCRETE JOINING P.C.C.P. OR ASPHALTIC CONCRETE SHOULDER: THE ASPHALT JOINT SHALL BE SAW CUT AND CONSTRUCTED IN ACCORDANCE WITH SECTION I-I, DRAWING RW3.
3. FOR SECTIONS C-C, E-E, F-F, G-G, H-H, I-I, J-J, AND K-K SEE DRAWING RW3.
4. ALL JOINTS ARE TO BE USED WHERE SHOWN ON THIS SHEET OR AS SHOWN ELSEWHERE IN THE PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER.
5. ON TYPE EJ JOINTS, SPOT WELD ALTERNATE ENDS OF DOWEL BARS TO DOWEL BASKETS AND PLACE EXPANSION TUBES ON FREE ENDS OF DOWEL BARS, (SECTION A-A).
6. TYPE EJ JOINTS SHALL BE SEALED WITH PREFORMED ELASTOMERIC COMPRESSION JOINT SEALS CONFORMING TO SUBSECTION 1005.03 OF DOTD "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", LATEST EDITION. THE SEALS SHALL HAVE A NOMINAL WIDTH OF 1-1/4" BEFORE COMPRESSION. JOINTS SHALL BE CLEANED PRIOR TO SEALING.
7. FOR DESIGN SPEEDS OF 45 MPH OR GREATER:
   A. TYPE LJ JOINTS SHALL BE SAW CUT AND CONSTRUCTED AS IN DETAIL "F" DRAWING RW3. THE JOINT SHALL BE SAW CUT AND CLEANED PRIOR TO SEALING WITH A JOINT SEALANT CONFORMING TO SUBSECTION 1005.02(b) OR (c) OF THE AFOREMENTIONED DOTD SPECIFICATIONS.
   B. TYPE TCJ OR CJ SHALL BE SAW CUT AS SHOWN IN DETAIL "C" OR "D" DRAWING RW3 AND TO THE DEPTH SHOWN IN TABLE 1. THE JOINT SHALL BE SAND BLASTED AND CLEANED IMMEDIATELY PRIOR TO SEALING. THE INITIAL CUT SHALL BE MADE WITH 1/8" MINIMUM BLADE. THE SEALANT SHALL BE A PREFORMED ELASTOMERIC SEAL IN ACCORDANCE WITH SUBSECTION 1005.03 OR A SILICONE SEALANT IN ACCORDANCE WITH SUBSECTION 1005.02(c) OF THE AFOREMENTIONED DOTD SPECIFICATIONS.
8. FOR DESIGN SPEEDS OF LESS THAN 45 MPH:
   A. TYPE LJ JOINTS SHALL BE SAW CUT AS DESCRIBED IN 7(A).
   B. TYPE TCJ OR CJ SHALL BE CONSTRUCTED AS FOLLOWS:
      (1) CONSTRUCTED AS DESCRIBED IN 7(B).
      (2) WITH A REMOVABLE FORMING DEVICE AS SHOWN IN DETAILS "A" AND "B" DRAWING RW3. THE JOINT SHALL BE SAND BLASTED AND CLEANED IMMEDIATELY PRIOR TO SEALING AND MAY REQUIRE SAWING TO ACHIEVE PROPER RESERVOIR DIMENSIONS.
      (3) WITH A COMBINATION JOINT FORMER/SEALER AS SHOWN IN DETAIL "E" DRAWING RW3. THE SEALER SHALL CONFORM TO SUBSECTION 1005.04 AND BE INSTALLED IN ACCORDANCE WITH SUBSECTION 601.09(c)(3) OF THE AFOREMENTIONED DOTD SPECIFICATIONS AND NO ADDITIONAL SEALANT IS REQUIRED.
9. EXCEPT AS NOTED BELOW, DOWEL BARS & TIE BARS SHALL BE HELD IN PLACE BY SUPPORTS SIMILAR TO THE ONES SHOWN, OR APPROVED EQUALS. APPROVED MECHANICAL PLACEMENT OF DOWEL BARS AND TIE BARS WILL BE ALLOWED WITH ALL PAVING METHODS. WHEN DOWEL BAR BASKETS ARE USED, APPROXIMATELY THE CENTER 7" OF SPACER WIRES, THAT SPANS ACROSS THE JOINT, SHALL BE CLIPPED AND REMOVED AFTER STAKING BASKETS IN PLACE.
10. INSTALL GEOTEXTILE FABRIC UNDER ALL TCJ, CJ, AND EJ JOINTS WHEN CONCRETE PAVEMENT IS PLACED ON UNSTABILIZED OR UNTREATED BASE COURSES OR SUBBASES. WHEN DOWEL BARS ARE MECHANICALLY IM-PLANTED, THE GEOTEXTILE FABRIC SHALL BE ANCHORED TO THE BASE COURSE WITH PINS.
11. WHEN CONSTRUCTING CONCRETE CURB AND GUTTER ADJACENT TO NEW P.C.C. PAVEMENT, USE TYPE LCJ JOINT. WHEN ADJACENT TO EXISTING P.C.C. PAVEMENT, USE TYPE LBJ JOINT. THE FIRST LOAD TRANSFER DEVICE SHALL BE INSTALLED 18" FROM THE PAVEMENT EDGE.
12. TRANSVERSE EXPANSION JOINTS SHALL NOT BE USED FOR CONSTRUC-TION JOINTS.
13. CONCRETE SHOULDERS:
   A. CONSTRUCT TCJ JOINTS IN ACCORDANCE WITH SECTION B-B.
   B. CONSTRUCT LCJ JOINTS IN ACCORDANCE WITH TYPE LCJ DETAIL ON THIS SHEET AND LJ JOINTS IN ACCORDANCE WITH SECTION D-D.
   C. USE THE MAXIMUM SHOULDER THICKNESS WHEN DETERMINING DOWEL BAR AND TIE BAR SIZES IN TABLE 1.
   D. WHEN SKEWED JOINTS ARE USED ON MAINLINE PAVING THE SHOULDER TCJ JOINTS MAY BE SKEWED OR CONSTRUCTED AT 90°.
   E. SHOULDER JOINTS AND JOINT MATERIALS WILL MATCH THE MAINLINE.
   F. HEIGHT OF DOWEL BASKETS WILL BE BASED ON THE SHOULDER THICKNESS. ALSO VARYING HEIGHT DOWEL BASKETS WILL BE ALLOWED.
14. TIE BARS SHALL NOT BE PLACED WITHIN 18" OF CONTRACTION OR EXPANSION JOINTS.
15. FOR REINFORCED STEEL, SEE DOTD SPECIFICATIONS SECTION 1009



SECTION B-B
TYPE TCJ OR CJ
(TRANSVERSE CONTRACTION JOINT OR TRANSVERSE CONSTRUCTION JOINT)

N.T.S.

(●●) ALTERNATE ENDS THAT ARE NOT WELDED SHALL BE GREASED.



SECTION D-D
TYPE LJ
(LONGITUDINAL JOINT)
(REQUIRED WHEN PAVEMENT WIDTH EXCEEDS 15')
(SEE NOTE (7))

N.T.S.

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CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

TYPICAL ROADWAY SECTIONS FOR STREET CONSTRUCTION

DRAWN BY:	REVIEWED BY:		RECOMMENDED BY:
N. SCHNEIDER	M.T.	D.V. R.S. B.J. A.Y.	NGUYEN D. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE: AS NOTED	APPROVED:	MARK B. JERNIGAN, DIRECTOR

DRAWING No.
RW2

NO.	DATE	REVISION DESCRIPTION	BY

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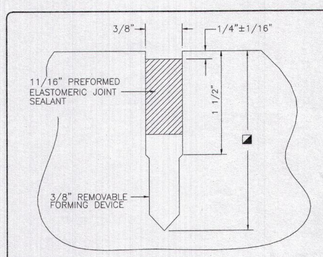
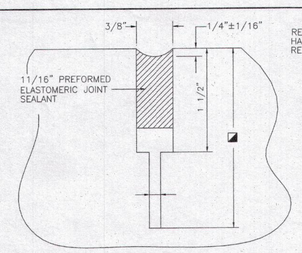
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	207

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

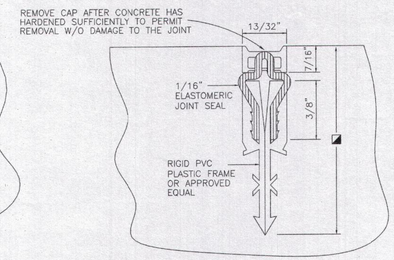
DPW STANDARD DRAWINGS



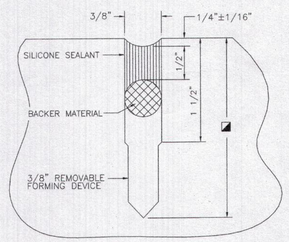
DETAIL "A"



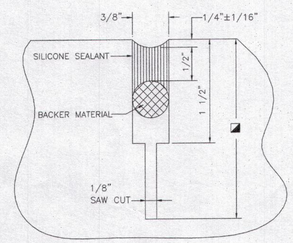
DETAIL "C"



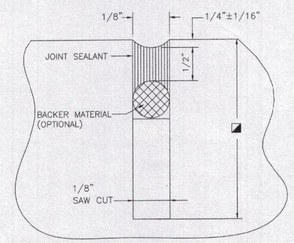
DETAIL "E"



DETAIL "B"



DETAIL "D"



DETAIL "F"

NOTES:

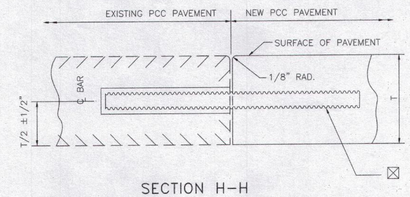
1. USE DETAILS "A" THRU "E" IN CONJUNCTION WITH TYPE TCJ AND CJ JOINTS (SECTION B–B), TYPE BJ JOINTS (SECTION J–J); AND NOTES (7) AND (8) ON DWG. RW2.
2. ◪ SEE TABLE I ON DWG. RW2

DETAILS "A" THRU "F"

N.T.S.

NOTES:

USE DETAIL "F" IN CONJUNCTION WITH TYPE LJ JOINT (SECTION D–D) AND NOTES (7) AND (8) ON DWG. RW2.

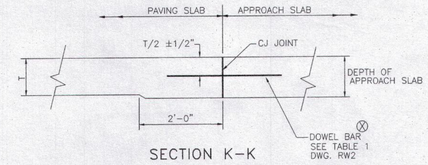


SECTION H–H
TYPE LBJ
(LONGITUDINAL BUTT JOINT)
(DWG. RW2)
N.T.S.

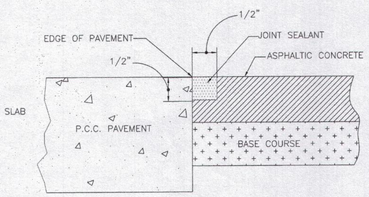
⊠ DEFORMED TIE BARS SHALL BE INSTALLED IN EXISTING PAVEMENT BY DRILLING HOLES 1/8" LARGER, IF EPOXY IS USED OR 1/2" LARGER IF GROUT USED, THAN THE DIAMETER OF THE TIE BAR TO A REQUIRED DEPTH OF 1/2 BAR LENGTH. THE HOLES SHALL BE FILLED WITH AN APPROVED ADHESIVE ANCHOR SYSTEM (QPL 52) OR TYPE I, GRADE C EPOXY RESIN BEFORE INSERTION OF THESE BARS. THE TIE BARS SIZE AND SPACING SHALL BE ONE OF THE FOLLOWING:

A. WHEN TIE BARS OF THE SIZE SHOWN IN TABLE 1, DRAWING RW2, ARE USED, THE BARS SHALL BE PLACED AT 1/2 SPACING.

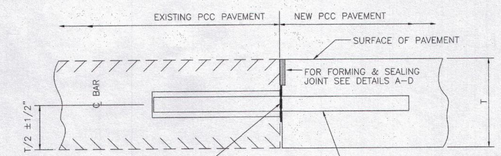
B. WHEN TIE BARS 1/4" LARGER THAN TIE BAR DIA–METER SHOWN IN TABLE 1, ARE USED) THE BARS SHALL BE PLACED AT THE SAME SPACING.



SECTION K–K
TYPE CJ AT APPROACH SLAB
FOR DETAILS NOT SHOWN SEE TYPE CJ, DWG. RW4 (SECTION B–B AND RELATED DETAILS)
(DWG. RW2)
N.T.S.

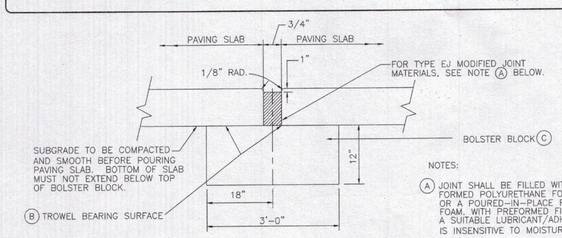


SECTION I–I
HOT POURED SEALANT
(DWG. RW2)
N.T.S.



SECTION J–J
TYPE BJ
(TRANSVERSE BUTT JOINT)
(DWG. RW2)
N.T.S.

⊗ SMOOTH DOWEL BARS OF THE SIZE & LENGTH AS SPECIFIED IN TABLE 1, DWG. RW2, SHALL BE USED. THE BARS SHALL BE PLACED IN THE EXISTING PAVEMENT BY DRILLING HOLES 1/8" LARGER THAN THE DIA. OF THE DOWEL BAR TO A DEPTH OF 1/2 THE BAR LENGTH AND FILLING THE HOLES WITH APPROVED TYPE I, GRADE C EPOXY RESIN BEFORE INSERTING THE DOWEL BARS. (SEE TABLE 1, DWG. RW2).



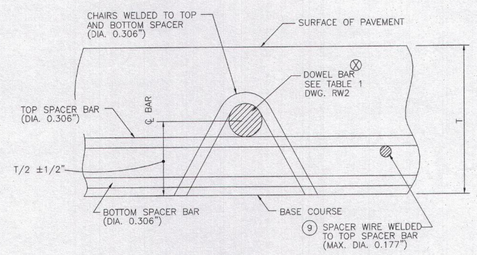
SECTION C–C
(DWG. RW2)
TYPE EJ MODIFIED
N.T.S.

NOTES:

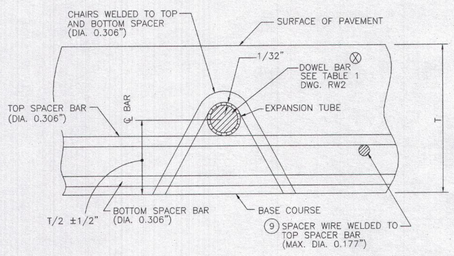
(A) JOINT SHALL BE FILLED WITH A PRE–FORMED POLYURETHANE FOAM TYPE FILLER OR A POURED–IN–PLACE POLYURETHANE FOAM. WITH PREFORMED FILLER, USE A SUITABLE LUBRICANT/ADHESIVE THAT IS INSENSITIVE TO MOISTURE.

(B) ONE LAYER OF 55–LB. TAR PAPER SHALL BE PLACED BETWEEN THE BOLSTER BLOCK AND THE PAVING SLABS.

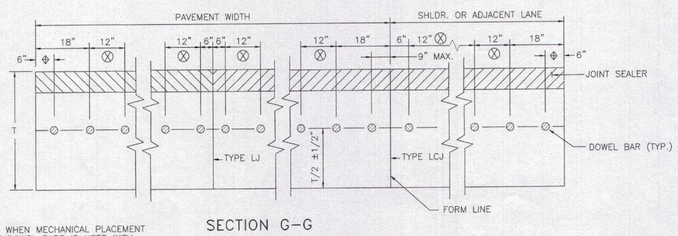
(C) BOLSTER BLOCK SHALL BE CONSTRUCTED OF CLASS "A" OR PAVEMENT TYPE CON–CRETE AT NO DIRECT PAY.



SECTION F–F
(DWG. RW2)
N.T.S.



SECTION E–E
(DWG. RW2)
N.T.S.



(Φ) 9" WHEN MECHANICAL PLACEMENT OF DOWEL BARS IS USED WITH FORM PAVING. ALSO SEE NOTE (4) DWG. RW2.

SECTION G–G
DOWEL BAR SPACING FOR TYPE TCJ, CJ, AND EJ JOINTS
(DWG. RW2)
N.T.S.

(⊗) SEE TABLE 1 DWG. RW2

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CITY OF NEW ORLEANS
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ENGINEERING DIVISION

TYPICAL ROADWAY SECTIONS FOR STREET CONSTRUCTION

DRAWN BY:	REVIEWED BY:	RECOMMENDED BY:
N. SCHNEIDER	M.T. B.V. R.S. B.J. A.Y.	NOUYEN K. PHAN, CHIEF ENGINEER
DATE: 2/3/2015	SCALE: AS NOTED	APPROVED: MARK D. JERNIGAN, DIRECTOR

DRAWING No.
RW3

SHEET NUMBER
208 of 209

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
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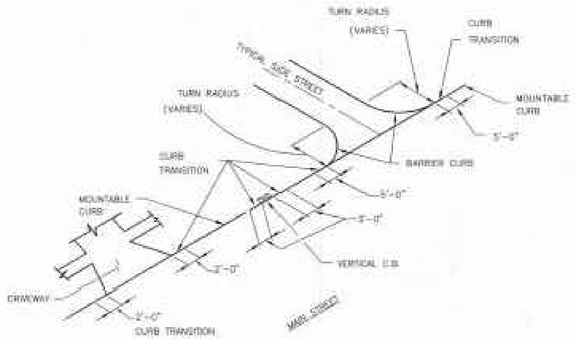
DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW	DATE	OCTOBER 2021
DETAILED	MEP/MSC	SHEET	208
CHECKED	FTL/AKW		

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM–005

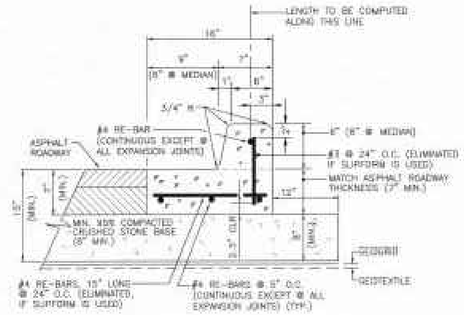
DPW STANDARD DRAWINGS

DWG PATH: S:_660_\NOSWB\660-0300.01 Cc, Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_201-209.DPW LAYOUT TAB: 208 DATE of PLOT: Friday, November 05, 2021 @ 9:54am



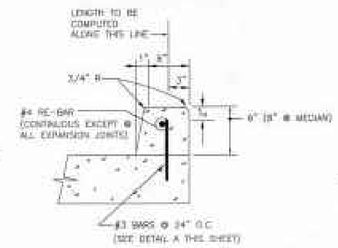
LOCATIONS OF CURB TRANSITION

N.T.S.



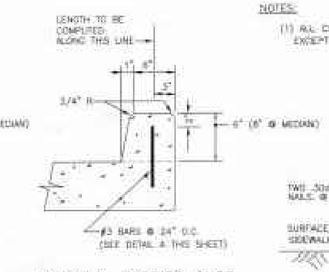
BARRIER CURB & GUTTERBOTTOM

N.T.S.



DOWELED BARRIER CURB

N.T.S.

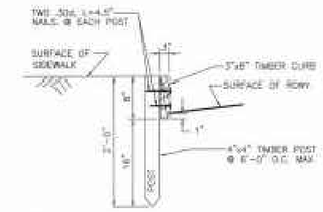


INTEGRAL BARRIER CURB

N.T.S.

NOTES:

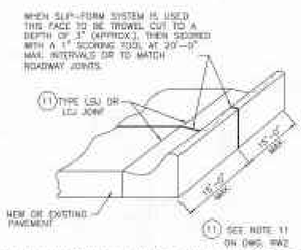
(11) ALL CONCRETE GUTTERBOTTOM AND CURBS TO BE 4000 PSI EXCEPT AS OTHERWISE INDICATED.



NOTE:
TIMBER TO BE TREATED NO. 1 COMMON PINE (13 LBS./CU.)

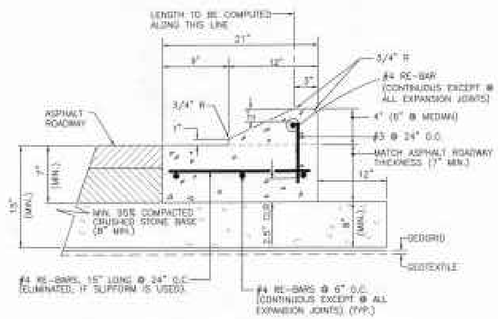
TYPICAL SECTION OF TIMBER CURB

N.T.S.



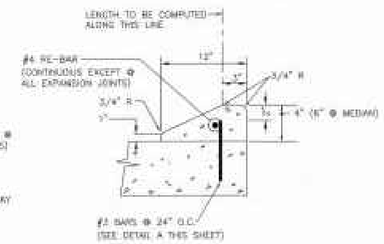
DETAIL SHOWING JOINTS IN CONCRETE CURB AND GUTTER

N.T.S.



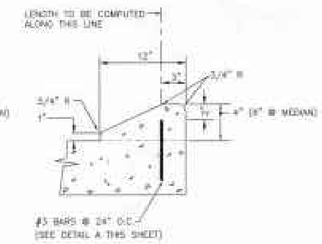
MOUNTABLE CURB & GUTTERBOTTOM

N.T.S.



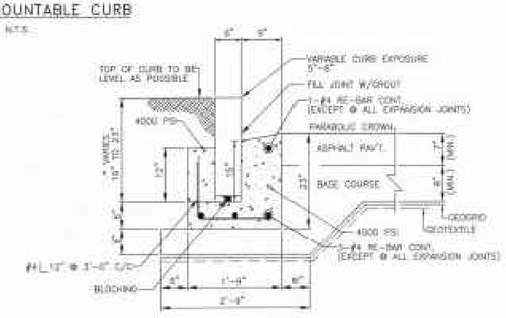
DOWELED MOUNTABLE CURB

N.T.S.



INTEGRAL MOUNTABLE CURB

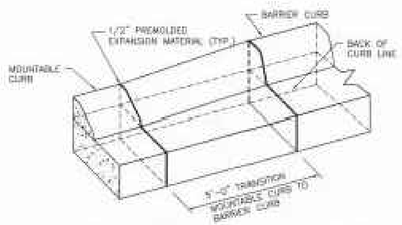
N.T.S.



TYPICAL GRANITE BLOCK CURBING

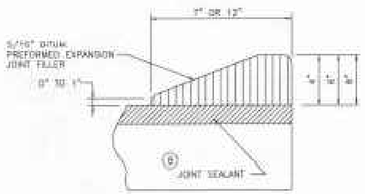
*APPROX. 19" TO 23" (ASSUME EXIST. GRANITE CURB IS 18" HIGH)

N.T.S.



MOUNTABLE-BARRIER CURB TRANSITION

N. T. S.



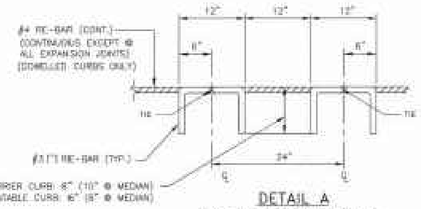
(9) SEE NOTE 9 ON DWG RW2

NOTE:
WHEN CURB IS POURED MONOLITHICALLY WITH PAVEMENT, THE BITUMINOUS PRE-FORMED EXPANSION JOINT FILLER SHALL EXTEND TO BOTTOM OF JOINT INSERT.

JOINT FILLER DETAIL FOR INTEGRAL CONCRETE CURB (MOUNTABLE OR BARRIER TYPE)

(MOUNTABLE CURB IS SHOWN)

N.T.S.



DETAIL A

SHOWING DIMENSIONS AND SPACING OF DEF. REINF. STEEL BARS FOR CONC. CURB

N.T.S.

THE SELECTION AND USE OF THESE DETAILS, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A LOUISIANA REGISTERED PROFESSIONAL ENGINEER.

CITY OF NEW ORLEANS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

TYPICAL ROADWAY SECTIONS FOR STREET CONSTRUCTION

DRAWN BY: M. MOHAMMED
REVIEWED BY: M.T. M.K. M.D. B.J. A.D.
RECOMMENDED BY: M.T.K. DEPUTY D. ENGINEERING
DATE: 2/13/2015
SCALE: AS NOTED
APPROVED: DIRECTOR

DRAWING No.
RW4

SHEET NUMBER
209 of 209

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
2216 ORLEANS AVE. STE. 200
NEW ORLEANS, LOUISIANA 70116

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE. STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	209

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

DPW STANDARD DRAWINGS

I. GENERAL

1. IT IS TO BE UNDERSTOOD THAT ALL REFERENCES TO "THE SEWERAGE AND WATER BOARD (S&WB) ENGINEER" THROUGHOUT THIS DOCUMENT SHALL REFER TO THE GENERAL SUPERINTENDENT OF THE S&WB OR HIS APPOINTED REPRESENTATIVE AND ALL REFERENCES TO "THE S&WB INSPECTOR" THROUGHOUT THIS DOCUMENT SHALL REFER TO THE INSPECTOR ASSIGNED TO THE PROJECT BY THE S&WB ENGINEER. THE S&WB INSPECTOR SHALL REPRESENT THE S&WB ENGINEER IN HIS/HER ABSENCE. IT IS ALSO TO BE UNDERSTOOD THAT ALL REFERENCES TO S&WB DRAWINGS AND SPECIFICATIONS REFER TO THE LATEST EDITION OR REVISION.

2. THE CONTRACTOR SHALL FURNISH ALL LABOR, SUPERVISION, MATERIALS AND EQUIPMENT REQUIRED FOR THE INSTALLATION OF NEW WATER MAINS, VALVES, MANHOLES, HYDRANTS AND HOUSE CONNECTIONS REQUIRED BY THE PROJECT DRAWINGS AND SPECIFICATIONS.

3. THE S&WB WORK FORCE SHALL BE RESPONSIBLE FOR THE CLOSURE OF ALL WATER VALVES. THE CONTRACTOR SHALL CONTACT THE NETWORKS ADMINISTRATION AT 2900 PEOPLES AVE., N.O. LA 70122, TWO WEEKS IN ADVANCE OF ANY REQUIRED WATER CLOSURES.

4. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE GENERAL SPECIFICATIONS OF THE S&WB. ANY MODIFICATION FROM THE DESIGN DRAWINGS PERTAINING TO S&WB FACILITIES MUST BE APPROVED BY THE S&WB ENGINEER PRIOR TO CONSTRUCTION.

5. ELEVATIONS SHOWN ON THE DRAWINGS MAY REFER TO NAVD 88 OR TO CARIO DATUM. IF THE NOTED ELEVATIONS REFERENCE THE CAIRO DATUM, 0.00 FT. NGVD 29 EQUALS 20.43 FT. CAIRO DATUM.

6. IT IS TO BE UNDERSTOOD THAT WHEREVER SAND IS STIPULATED IN THE SPECIFICATIONS OR DRAWINGS, IT SHALL REFER TO PUMPED MISSISSIPPI RIVER SAND OR ANY NATURAL SAND DEPOSIT MEETING THE REQUIREMENTS OF AASHTO A-3 OR ASTM-SP.

7. THE CONTRACTOR SHALL NOTIFY THE GENERAL SUPERINTENDENT (625 ST. JOSEPH ST., N.O. LA 70165), WITH COPIES TO THE CHIEF OF ENGINEERING (8800 S. CLAIBORNE AVE., N.O., LA 70118), AND THE CHIEF OF CONSTRUCTION ADMINISTRATION AND INSPECTION (8800 S. CLAIBORNE AVE., N.O., LA 70118) OF THE S&WB IN WRITING NOT LESS THAN THREE (3), NOR MORE THAN TEN (10) DAYS IN ADVANCE OF STARTING THE PROJECT SO AS TO SCHEDULE THE INSPECTION OF ANY S&WB WORK. IF THE CONTRACTOR FAILS TO DO SO PRIOR TO STARTING HIS WORK, THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE THE BEDDING ON ALL PIPES OR ANY OTHER CONCEALED WORK PREVIOUSLY INSTALLED IN ORDER TO OBTAIN THE APPROVAL OF THE S&WB INSPECTOR. ANY WORK PERFORMED WITHOUT A S&WB INSPECTOR'S APPROVAL WILL NOT BE ACCEPTED BY THE S&WB, NOR TIED INTO THE S&WB'S DISTRIBUTION SYSTEM.

8. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE DRAWINGS SHOULD BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF ALL EXISTING STRUCTURE INVERTS AND THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF WORK, AND SHALL BE RESPONSIBLE FOR ANY NEGLIGENCE ON HIS PART IN PROTECTING THEM. THE LOCATION OF SEWER AND WATER HOUSE CONNECTIONS CAN BE OBTAINED FROM THE S&WB.

9. ALL S&WB MAINTAINED WATER FACILITIES INSTALLED BY THE CONTRACTOR WILL BE SUBJECT TO THE APPROVAL OF THE S&WB INSPECTOR. THE CONTRACTOR SHALL PROVIDE THE S&WB INSPECTOR FULL ACCESS TO THE WORK THROUGHOUT CONSTRUCTION AND ABIDE BY ANY JUSTIFIABLE S&WB INSPECTOR'S REQUEST TO EXPOSE ANY AND ALL WORK INSTALLED BY THE CONTRACTOR.

10. BACKFILL MATERIAL FOR ALL UTILITIES SHALL BE SAND COMPACTED MECHANICALLY IN 12 IN. LIFTS. COMPACTION SHALL BE PERFORMED TO 95% MAXIMUM DRY DENSITY, NEAR OPTIMUM WATER CONTENT, AND SHALL MEET THE COMPACTION CHARACTERISTICS OF ASTM D-1557.

11. ALL REMOVED VALVES AND HYDRANTS SHALL BE RETURNED TO THE S&WB CENTRAL YARD WAREHOUSE LOCATED AT 2900 PEOPLES AVE.

12. THE INSTALLATION OF THE WATER MAINS CLOSER TO A SEWER SHALL BE DESIGNED TO BE LAID IN A SEPARATE TRENCH LOCATED ON THE ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE GRAVITY SEWER.

II. PIPE MATERIAL

ALL PIPE, PIPE FITTING, CONNECTORS, CORPORATION STOPS AND APPURTENANCES SHALL BE OF DOMESTIC MANUFACTURE, SHALL BE MADE OF LEAD FREE MATERIAL AND MEET ALL REQUIREMENTS OF AWWA, ASTM AND ANSI FOR USE IN POTABLE WATER DISTRIBUTION SYSTEMS.

A. POLYVINYL CHLORIDE (PVC)

1. ALL NEW WATER MAINS 6 IN. THROUGH 12 IN. SHALL BE SOLID WALL DR 18 PVC PIPE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C900 "POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FABRICATED FITTINGS, 4 IN. THROUGH 12 IN. FOR WATER DISTRIBUTION." NEW WATER MAINS 16 IN. THROUGH 36 IN. SHALL BE SOLID WALL DR 18 PVC PIPE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C905" POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FABRICATED FITTINGS, 14 IN. THROUGH 48 IN. FOR WATER TRANSMISSION AND DISTRIBUTION." PIPE SHALL BE FURNISHED IN STANDARD LENGTHS (MIN. 16 FT.) WITH INTEGRAL CAST BELLS OR COUPLINGS USING ELASTOMERIC GASKETS CONFORMING TO AWWA STANDARD C900, OR TO ASTM D3139 OR F477.

2. FOR PVC WATER LINES, ALL PIPE FITTINGS SHALL BE DUCTILE IRON AND SHALL CONFORM TO THE FOLLOWING SECTION ON "DUCTILE IRON". ALL NUTS, BOLTS AND WASHERS SHALL BE MANUFACTURED OF 304 STAINLESS STEEL.

B. DUCTILE IRON

1. DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C150, "THICKNESS DESIGN OF DUCTILE-IRON PIPE" AND AWWA STANDARD C151,"DUCTILE IRON PIPE, CENTRIFUGALLY CAST, FOR WATER," SPECIAL THICKNESS CLASS 52. DUCTILE IRON PIPE FOR ABOVE GROUND EXPOSED APPLICATIONS SUCH AS CANAL CROSSINGS OR INSIDE OF AN UNDERGROUND DRAINAGE BOX CANAL SHALL BE SPECIAL THICKNESS CLASS 56. NO JOINTS WILL BE ALLOWED INSIDE THE BOX CANAL.

2. DUCTILE IRON FITTINGS SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C110, "DUCTILE-IRON AND GRAY-IRON FITTING FOR WATER" OR C153, "DUCTILE-IRON COMPACT FITTING", FOR WATER SERVICE, 3 IN. THROUGH 24 IN. AND 54 IN. THROUGH 64 IN.

3. ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE AN ASPHALTIC COATING IN ACCORDANCE WITH AWWA STANDARDS C151 AND C110. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE INSTALLED IN A POLYETHYLENE ENCASEMENT, 8 MILS IN THICKNESS, IN ACCORDANCE WITH AWWA STANDARD C105, "POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE SYSTEMS". THIS POLYETHYLENE ENCASEMENT SHALL COVER ALL DUCTILE IRON PIPE AND FITTINGS, INCLUDING JOINTS, AND SHALL BE OVERLAPPED A MINIMUM OF 12 IN. BETWEEN SECTIONS AND SEALED WITH BLACK POLYETHYLENE TAPE.

4. DUCTILE IRON PIPE AND FITTINGS SHALL BE LINED WITH CEMENT MORTAR, IN COMPLIANCE WITH AWWA STANDARD C104, "CEMENT-MORTAR LINING FOR DUCTILE-IRON PIPE AND FITTING FOR WATER".

5. JOINTS FOR DUCTILE IRON PIPE AND FITTINGS FOR BELOW GROUND APPLICATIONS SHALL BE PUSH-ON TYPE OR MECHANICAL JOINTS WITH RUBBER GASKETS IN ACCORDANCE WITH AWWA STANDARD C111, "RUBBER GASKET JOINTS FOR DUCTILE IRON PRESSURE PIPE AND FITTINGS". JOINTS FOR DUCTILE IRON PIPE AND FITTINGS FOR ABOVE GROUND EXPOSED APPLICATIONS, SUCH AS CANAL CROSSINGS, SHALL BE AMERICAN "FLEX-RING" OR U.S. PIPE "TR FLEX" OR APPROVED EQUAL. (U.S. PIPE "FIELD LOK 350 GASKET" AND AMERICAN "FAST-FRIP GASKET" ARE NOT ALLOWED). ANY REQUIRED DUCTILE IRON FLANGES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C115, "FLANGED DUCTILE IRON PIPE WITH DUCTILE IRON OR GRAY IRON THREADED FLANGES". STAINLESS STEEL BOLTS AND NUTS SHALL BE USED ON BOLTED FITTINGS, VALVES, SADDLES, ETC. ALL JOINTS SHALL BE RETRAINED PER MANUFACTURERS RECOMMENDATIONS.

C. OTHER MATERIALS

STEEL, FIBERGLASS REINFORCED PIPE (FRP), AND HIGH DENSITY POLYETHYLENE (HDPE) ARE MATERIALS THAT HAVE BEEN APPROVED FOR INSTALLATION WITHIN THE WATER SYSTEM. THE SPECIFICATIONS FOR THESE MATERIALS WILL BE JOB SPECIFIC.

III. WATER MAIN INSTALLATION

1. THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH FROM ALL OTHER UTILITIES. THE MINIMUM ALLOWABLE HORIZONTAL DISTANCE BETWEEN THE WATER MAIN, SEWER MAIN AND THE DRAIN LINE SHALL BE 6 FT., OD TO OD, AND A MINIMUM VERTICAL SEPARATION OF 18 IN., OD TO OD, AS STIPULATED IN LOUISIANA ADMINISTRATIVE CODE TITLE FIFTY-ONE (51) PUBLIC HEALTH-SANITARY CODE PART XII WATER SUPPLIES. THE MINIMUM ALLOWABLE HORIZONTAL DISTANCE BETWEEN THE WATER MAIN AND OTHER UTILITIES SHALL BE 3 FT. AND A MINIMUM VERTICAL CLEARANCE OF 6 IN. ABOVE AND 12 IN. BELOW OTHER UTILITIES. IN INSTANCES WHERE A NEW WATER MAIN IS REPLACING AN EXISTING, THE NEW MAIN MUST BE A MINIMUM OF 3 FT. FROM THE EXISTING MAIN AND THE EXISTING MAIN MUST BE KEPT IN SERVICE UNTIL THE NEW MAIN IS TIED IN. THE MINIMUM COVER FOR A WATER MAIN IS AT 3.5 FT. ALL DIMENSIONS BETWEEN UTILITIES SHALL BE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.

2. THE CURVATURE OF THE WATER MAINS IN CUL-DE-SACS MAY BE ACCOMPLISHED WITH POLYETHYLENE PE 3406 OR PE 3408 TUBING MATERIAL WITH LEAD FREE BRASS FITTINGS, USUALLY A 2 IN. MINIMUM DIAMETER LINE.

3. THE INSTALLATION OF ALL PIPE SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATIONS AND THE APPLICABLE REQUIREMENTS OF SECTION F OF THE S&WB GENERAL SPECIFICATIONS. THE TRENCH BOTTOM SHALL BE SMOOTH AND FREE FROM ROOTS, ROCKS, ETC. THE PIPE SHALL BE LAID ON A 6 IN. BED OF SAND FOR THE FULL WIDTH OF THE TRENCH AND COMPACTED TO 95% STANDARD PROCTOR DENSITY AT OR NEAR THE OPTIMUM MOISTURE CONTENT. THE SAND SHALL BE PLACED AND CONSOLIDATED UNDER THE PIPE HAUNCHES TO PROVIDE ADEQUATE SIDE SUPPORT TO THE PIPE AVOIDING DISPLACEMENT AND MISALIGNMENT. THE REMAINDER OF THE TRENCH SHALL BE FILLED WITH SAND IN 12" LIFTS AND COMPACTED TO 95% OPTIMUM DENSITY AND UP TO THE SPECIFIED GRADE AS REQUIRED BY THE S&WB GENERAL SPECIFICATIONS.

4. LUBRICANT FOR GASKETED PIPE AND FITTINGS SHALL BE SUITABLE FOR POTABLE WATER SYSTEMS AND SHALL CONFORM TO AND BE CERTIFIED BY BOTH OF THE FOLLOWING STANDARDS:
A. ANSI/NSF 14: PLASTIC PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS.
B. ANSI/NSF 61: DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS.
THE USE OF OLEATE-BASED LUBRICANTS IS NOT PERMITTED FOR NEW WATER MAIN INSTALLATIONS DUE TO ODOR AND TASTE TRANSFER PROBLEMS.

5. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CLEANLINESS OF THE MAIN UNTIL COMPLETION OF THE WORK AND FINAL ACCEPTANCE OF THE CONTRACT. AT THE END OF EACH DAY'S WORK, OR STOPPAGE OF WORK, THE CONTRACTOR MUST PROVIDE AN APPROVED TEMPORARY WATERTIGHT PLUG AT EACH OPEN END. WHEN WORK IS RESUMED, THE TRENCH MUST BE FREE OF WATER AND DIRT BEFORE THE PLUG IS REMOVED.

6. THE CONTRACTOR SHALL MAKE ALL TIE-INS AND SHALL PROVIDE ALL MATERIAL FOR TIE-INS AS SPECIFIED IN THE CONTRACT DRAWINGS. THE TIE-IN SHALL BE CONFIGURED IN SUCH A MANNER TO REQUIRE 18 LINEAR FEET OF PIPE OR LESS. THE S&WB DOES NOT ALLOW INSTALLATION OF PIPE RUNS GREATER THAN 18 LINEAR FEET WITHOUT HYDROSTATIC PRESSURE TESTING AND CHLORINATION. ALL PIPE USED IN THE TIE-IN SHALL BE THOROUGHLY CLEANED AND SWABBED WITH A 1-5 PERCENT HYPOCHLORITE DISINFECTING SOLUTION JUST PRIOR TO BEING INSTALLED, AS RECOMMENDED BY AWWA C651. TIE-INS SHALL ONLY BE MADE ONCE THE CHLORINATION PROCESS HAS BEEN APPROVED.

7. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE S&WB PRIOR TO MAKING TIE-INS, AND SHALL WORK CONTINUOUSLY UNTIL COMPLETION ON ALL TIE-INS AND WATER SERVICES ARE RESTORED. WATER SERVICES WILL NOT BE INTERRUPTED UNTIL ALL CREWS AND EQUIPMENT ARE ON SITE WITH THE CONNECTION EXPOSED, AND PREPARED TO BEGIN THE TIE-IN. IN ADDITION, THE CONTRACTOR MUST SHOW THAT THE N.O. FIRE DEPT. AND AFFECTED RESIDENTS HAVE BEEN NOTIFIED 24 HOURS IN ADVANCE OF ANY INTERRUPTION OF SERVICE. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LIMIT RESIDENTIAL CLOSURES.

8. PRIOR TO THE INSTALLATION OF S&WB FACILITIES, THE ENTIRE AREA WITHIN THE PUBLIC RIGHT-OF-WAY, INCLUDING THE ENTIRE WIDTH OF ANY SERVITUDE ADJACENT TO THE FRONT PROPERTY LINE, PLUS AN ADDITIONAL 3 FT. MUST BE FILLED TO THE FINISHED GRADE.

IV. METER MANHOLES, VAULTS & BOXES

1. WHERE MANHOLES OR VAULTS ARE REQUIRED WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND CONSTRUCTION OF THE METER MANHOLE OR VAULT IN ACCORDANCE WITH THE S&WB GENERAL SPECIFICATIONS SECTION F-12. METER SIZES 1 IN. AND SMALLER SHALL BE INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY IN A METER BOX AS SHOWN ON S&WB DWG. NO. 7134-W. METER SIZES 1 1/2 IN. AND 2 IN. INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE INSTALLED IN MANHOLES AS SHOWN ON S&WB DWG. NO. 7332-W. METER SIZES 4 IN. TO 12 IN. INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE INSTALLED IN VAULTS AS SHOWN ON S&WB DWG. NO. 7531-W.

2. ALL MANHOLE FOUNDATION SLABS SHALL BE PLACED ON A 6 IN. LAYER OF CRUSHED STONE OR APPROVED EQUAL BEDDING MATERIAL. PRECAST VALVE MANHOLES REQUIRE APPROVAL BY SWB ENGINEERING PRIOR TO INSTALLATIONS.

3. METER BOXES SHALL BE ADJUSTED TO FINAL GRADE WITH NO SEPARATION BETWEEN THE BARREL AND LOWER METER PAN. NO ADJUSTMENT RINGS ARE ALLOWED.

V. HOUSE CONNECTIONS

1. WATER HOUSE CONNECTIONS SHALL BE INSTALLED AT THE CENTER OF EACH LOT UNLESS OTHERWISE APPROVED BY THE S&WB ENGINEER. FOR NEW CONSTRUCTION, THE LOCATION OF ALL WATER HOUSE CONNECTIONS SHALL BE IMPRINTED ON THE CURB WITH THE LETTER "W" NOT LESS THAN 3 IN. HIGH AND 1/4 IN. DEEP. SIZE OF TAP, CORPORATION COCK AND POLYETHYLENE PIPE SHALL BE 1 INCH FOR 5/8 IN. TO 1 IN. METERS AS SHOWN ON S&WB DWG. NO. 7134-W.

2. WHEN THE WATER MAIN IS LOCATED OUTSIDE OF THE ROADWAY AND SERVICE CONNECTIONS ARE REQUIRED ON THE OPPOSITE SIDE OF THE STREET, THE CONTRACTOR SHALL FURNISH AND INSTALL PVC CONDUIT PIPE (MIN. 0216 IN. WALL THICKNESS, MIN. 3 IN. DIAMETER) WITH ENDS TEMPORARILY SEALED.

3. ALL BRONZE/BRASS FITTINGS, CONNECTORS, CORPORATION STOPS AND APPURTENANCES SHALL BE OF DOMESTIC MANUFACTURE, SHALL BE MADE OF LEAD FREE BRONZE/BRASS, AND MEET ALL REQUIREMENTS OF AWWA, ASTM AND ANSI FOR USE IN THE POTABLE WATER DISTRIBUTION SYSTEMS.

4. NO DIRECT TAPPING OF THE PIPE WILL BE PERMITTED FOR MAKING HOUSE CONNECTIONS. SERVICE SADDLES SHALL BE BRONZE CLOW NO. 3407 G, J. JONES J-996, MUELLER SERIES H-13400, S90 FORD BRASS SADDLE, OR FORD FC202. THE CONTRACTOR SHALL USE ONLY SHELL TYPE HOLE CUTTERS THAT WILL RETAIN THE COUPON.

VI. METERS

1. REQUIRED METERS WILL BE FURNISHED BY THE S&WB AT NO ADDITIONAL COST TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND CONSTRUCTION OF THE METER BOX, AND METER MANHOLE OR VAULT.

2. THE METER SHALL BE INSTALLED AS RECEIVED FROM THE S&WB METER DEPARTMENT AND MAY NOT BE MODIFIED IN ANY MANNER. ANY MODIFICATIONS WILL VOID THE UL WARRANTY AND, AS SUCH, MAY SUBJECT THE OWNER TO FINANCIAL PENALTY AND LOSS OF SERVICE.

3. METERS INSTALLED ON PRIVATE PROPERTY SHALL BE INSTALLED AS SHOWN ON S&WB DWG. NO. 8353-W AND MEET THE REQUIREMENTS OF THE S&WB PLUMBING DEPARTMENT.

VII. VALVES AND HYDRANTS

1. VALVES 4 IN. TO 12 IN. INSTALLED IN THE PUBLIC RIGHT-OF-WAY SHALL BE S&WB R.D. WOOD GATE VALVES AS SHOWN IN S&WB DWG. 11897-W-62 OR AMERICAN RD ROTATING GATE DISC VALVE C 500 WITH ADJUSTABLE PACKING. VALVES 16 IN. AND LARGER SHALL BE AMERICAN R/D GATE VALVES. ALL VALVES MUST BE INSTALLED IN MANHOLES AND LOCATED AT THE PROJECTED PROPERTY LINE.

2. HYDRANTS SHALL BE 5 IN. BREAKAWAY FIRE HYDRANT BRONZE TRIM AS DETAILED IN S&WB DWG. NO. 11825-W-62, 5 1/4 IN. AMERICAN DARLING FIRE HYDRANT B-62-B, S&WB MUELLER HYDRANT A473 AS DETAILED IN MUELLER DRAWING NO. FH 285 AND K81D GUARDIAN HYDRANT AS DETAILED IN KENNEDY VALVE DRAWING NO. 80783-NOLA.

3. HYDRANT LEADS SHALL BE 6 IN. SOLID WALL PVC PIPE CLASS 150, AWWA STANDARD C-900. ALL HYDRANT LEAD JOINTS SHALL BE RETRAINED. A 6 IN. VALVE WITH VALVE BOX SHALL BE INSTALLED ON ALL HYDRANT LEADS. HYDRANTS SHALL BE INSTALLED WITH WOOD BLOCKING AND BE SPACED NOT MORE THAN 350 FT . APART, 6 FT. OFF THE PROJECTED PROPERTY LINE ON CORNER LOTS AND WITHIN 5 FT. OF THE CENTER OF THE LOT FOR INTERIOR LOTS. FOR DETAILS OF SETTING HYDRANTS, SEE S&WB DWG. NO 6179-F-2.

VIII. TESTING, CHLORINATION AND FLUSHING

1. ALL NEW MAINS, VALVES, HYDRANTS AND SERVICES SHALL BE INSTALLED PRIOR TO PRESSURE TESTING. THE SYSTEM SHALL BE PRESSURE TESTED BY THE CONTRACTOR IN THE PRESENCE OF THE S&WB INSPECTOR AND IN ACCORDANCE WITH PARAGRAPH F-15 OF THE GENERAL SPECIFICATIONS. THE TEST SHALL BE SCHEDULED BY THE S&WB INSPECTOR. ALL AIR SHALL BE BLED FROM THE SYSTEM PRIOR TO TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED AS A RESULT OF TEST FAILURES, INCLUDING REPAIRS TO DEFECTS.

2. ALL NEW AND/OR MODIFIED SEGMENTS OF THE WATER DISTRIBUTION SYSTEM SHALL BE TESTED TO 100 P.S.I. THIS PRESSURE SHALL BE MAINTAINED FOR A MINIMUM PERIOD OF TWO (2) HOURS WITH NO PRESSURE LOSS. LEAKS SHALL BE REPAIRED BY REMOVING AND REPLACING FAULTY SECTIONS. THE PRESSURE TEST SHALL BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECT SUPERVISION OF THE ENGINEERING DEPARTMENT.

3. BEFORE BEING PLACED IN SERVICE, ALL NEW, MODIFIED AND/OR CONTAMINATED SEGMENTS OF THE WATER DISTRIBUTION SYSTEM SHALL BE FLUSHED AND DISINFECTED (CHLORINATED) BY THE CONTRACTOR UNDER THE DIRECT SUPERVISION OF AND TO THE SATISFACTION OF THE S&WB ENGINEER. FLUSHING SHOULD BE DONE AT FLOW RATES SUFFICIENT TO PROVIDE A VELOCITY IN THE LINES OF AT LEAST 2.5 FEET PER SECOND. DISINFECTION SHOULD COMPLY WITH AWWA STANDARD C651, "DISINFECTING WATER MAINS". ONLY AFTER SATISFACTORY PRESSURE TESTING AND DISINFECTION (CHLORINATION) IS COMPLETED CAN THE SEGMENT BE TIED INTO THE EXISTING WATER DISTRIBUTION SYSTEM. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO MAKE A TIE-IN TO THE EXISTING WATER DISTRIBUTION SYSTEM WITHOUT DIRECT SUPERVISION OF THE ENGINEERING DEPARTMENT. ALL COSTS ASSOCIATED WITH THE TESTING, FLUSHING AND CHLORINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. THE CONTRACTOR SHALL CHLORINATE THE NEW WATER MAIN SYSTEM, INCLUDING FIRE HYDRANTS, FIRE HYDRANTS LEADS, VALVES AND SERVICE CONNECTIONS, UNDER THE DIRECT SUPERVISION OF THE S&WB, SUCH THAT THE MINIMUM CHLORINE CONCENTRATION THROUGHOUT THE SYSTEM IS 50 MG/L. THE CHLORINATED WATER SHALL BE RETAINED IN THE PIPE FOR 24 HOURS FOR WATER MAINS LESS THAN 30 INCHES IN DIAMETER, AND FOR 48 HOURS FOR WATER MAINS GREATER THAN OR EQUAL TO 30 INCHES IN DIAMETER. AFTER THE REQUIRED RETENTION TIME, THE CHLORINATED RESIDUAL SHALL BE AT LEAST 5 MG/L FREE CHLORINE, AS MEASURED BY THE S&WB. IF THE RESIDUAL IS LESS THAN 5 MG/L AT ANY POINT IN THE SYSTEM, THE INITIAL FLUSHING AND DISINFECTION PROCEDURE SHALL BE REPEATED BY THE CONTRACTOR UNTIL A 5 MG/L FREE CHLORINE RESIDUAL IS OBTAINED. THE CONTRACTOR SHALL CONTACT THE S&WB WATER PURIFICATION DEPARTMENT (504) 865-0572, A MINIMUM OF 48 HOURS PRIOR TO CHLORINATING THE NEW MAIN TO SCHEDULE THE SAMPLE COLLECTION.

5. THE NEW MAIN MUST BE CONNECTED TO THE S&WB'S SYSTEM WITHIN 72 HOURS OF NOTIFICATION OF PASSING THE CHLORINATION TEST. FAILURE TO COMPLETE THE TIE-INS WITHIN THIS TIME LIMITATION WILL RESULT IN RETESTING THE NEW MAIN AT THE EXPENSE OF THE CONTRACTOR.

IX. INSPECTION

1. ALL INSTALLATION OF WATER MAINS AND RELATED APPURTENANCES WILL BE PERFORMED UNDER THE INSPECTION OF, AND TO THE SATISFACTION OF THE S&WB INSPECTOR THROUGHOUT THE COURSE OF THE WORK.

X. FINAL ACCEPTANCE

1. THE NEW WATER MAINS AND APPURTENANCES MUST BE INSTALLED LEVEL, AT PROPER GRADE, HAVE PASSED ALL REQUIRED TESTS, AND CONNECTED TO THE EXISTING WATER SYSTEM PRIOR TO OBTAINING FINAL ACCEPTANCE.

2. BEFORE FINAL INSPECTION OF THE SYSTEM, THE CONTRACTOR SHALL SUBMIT AN "AS-BUILT" DRAWING TO THE S&WB SHOWING THE WATER LINE LOCATION AND THE LOCATION OF ALL HOUSE CONNECTIONS, IN ACCORDANCE WITH S&WB REQUIREMENTS. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO CERTIFY THAT THE "AS-BUILT" DRAWINGS ARE CORRECT. ANY INACCURACY AS DETERMINED BY THE S&WB IN THE "AS-BUILT" DRAWINGS SHALL BE CORRECTED AT THE COST OF THE CONTRACTOR.

3. THE CONTRACTOR MUST CONTACT THE S&WB TO SET A DATE FOR FINAL INSPECTION. IN THE EVENT THE CONTRACTOR CALLS FOR AN INSPECTION AND THE WORK IS NOT ADEQUATELY COMPLETE, A NEW INSPECTION DATE WILL THEN BE SET AT THE DISCRETION OF THE S&WB INSPECTOR.

4. FINAL ACCEPTANCE OF THE SYSTEM WILL BE SUBJECT TO A ONE (1) YEAR MAINTENANCE PERIOD.

REV.	DATE	DESCRIPTION	BY

SEWERAGE AND WATER BOARD OF NEW ORLEANS

SPECIFICATIONS FOR INSTALLATION OF WATER MAINS

DR.	D. MC.	GENERAL SUPERINTENDENT
TRC.		
CK.	M. M.	
AP.	R. S.	DWG. NO. 7260-W
SCALE	NONE	
DATE	10-03-19	SHEET NO. 2

SHEET NUMBER 301 of 303

NO.	DATE	REVISION DESCRIPTION	BY

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	301

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

SWB STANDARD DRAWINGS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC, Broadmoor, Fontainebleau TM\3 Design\CAD\ DATE of PLOT: Friday, November 05, 2021 @ 9:54am
DWG NAME: 660-0300.01_301-303_SWB LAYOUT TAB: 301

DRAIN NOTES

I. GENERAL

1. It is to be understood that all references to "The Sewerage and Water Board (S&WB) Engineer" throughout this document shall refer to the General Superintendent of the S&WB or his appointed representative, and all references to "The S&WB Inspector" throughout this document shall refer to the inspector assigned to the project by the S&WB Engineer. The S&WB Inspector shall represent the S&WB Engineer in his/her absence. It is also to be understood that all references to S&WB drawings and specifications refer to the latest edition or revision.

2. The Contractor shall furnish all labor, supervision, materials, and equipment required for installation of new main drains, manholes, catch basins, connections, etc., required by the project drawings and specifications.

3. All workmanship and materials shall conform to the General Specifications of the S&WB. Any modification from the design drawings pertaining to S&WB facilities must be approved by the S&WB Engineer prior to construction.

4. Prior to the installation of any S&WB facilities, the entire area within the public right-of-way, including the entire width of any servitude adjacent to the front property line, plus an additional 3 ft. must be filled to the finished grade.

5. All elevations shown on the drawings refer to Cairo Datum in which 0.00 ft. NGVD is equal to 20.43 ft. Cairo Datum.

6. It is to be understood that wherever sand is stipulated in the specifications or drawings, it shall refer to pumped Mississippi River sand or any natural sand deposit meeting the requirements of AASHTO A-3 or ASTM-SP.

7. The Contractor shall notify the General Superintendent (625 St. Joseph St. N.O. LA 70165), with copies to the Chief of Engineering (8800 S. Claiborne Ave N.O. LA 70118), and the Chief of Construction Administration and Inspection (8800 S. Claiborne Ave N.O. LA 70118) of the S&WB in writing not less than three, nor more than ten days in advance of starting the project so as to schedule the inspection of any S&WB work. If the Contractor fails to do so prior to starting his work the Contractor will be required to expose the bedding on all pipe, or any other concealed work previously installed in order to obtain the approval of the S&WB Inspector. Any work performed without a S&WB Inspector's approval, will not be accepted by the S&WB, nor tied into the S&WB's drainage system.

8. The location of existing utilities shown on the drawings should be considered approximate. The Contractor shall verify the elevation of all existing structure inverts and the location of all existing utilities prior to the start of work, and shall be responsible for any negligence on his part in protecting them. The location of sewer and water house connections can be obtained from the S&WB.

9. All S&WB maintained drainage work performed by the Contractor will be subject to the approval of the S&WB Inspector. The Contractor shall provide the S&WB Inspector full access to the work throughout construction and abide by any justifiable S&WB Inspector's request to expose any and all work installed by the Contractor.

10. Backfill material for all utilities shall be sand either compacted mechanically in 6 in. lifts or flooded in 3 ft. lifts. Compaction shall be performed to 95% maximum dry density, near optimum water content, and shall meet the compaction characteristics of ASTM D-1557.

II. PIPE MATERIAL

1. All new drain pipe shall be reinforced concrete conforming to ASTM C-76, Class III, IV or V. All concrete drain pipe shall have a minimum cover of 2.5 ft. below the gutter line and 2 ft. of compacted native material outside of the paved road surface. Class IV RCP must be used when cover over the pipe within the roadway is less than 2.5 ft. Reinforced concrete pipe for drains 12 in. through 48 in. diameter shall be of the bell and spigot type. Drains above 48 in. in diameter shall be of the tongue and groove type.

2. All main drain lines shall be a minimum of 15 in. in diameter.

3. At points of tie-ins to the existing system, where the existing material is not concrete, or the connection is not made at a standard concrete joint, the connection shall be made with the use of a coupling and bushing adapter (Mission Rubber Co., Fernco or equal) conforming to ASTM C- 1173.

III. DRAIN MAIN INSTALLATION

1. The main drain shall be laid in a separate trench from all other utilities. The trench bottom shall be smooth and free from rocks, roots, etc. The minimum allowable horizontal distance between the main drain and other utilities shall be 3 ft. and a minimum vertical separation from all other utilities of 12 in. unless otherwise noted on the plans. All dimensions between utilities shall be measured from outside diameter to outside diameter.

2. Mains, manholes, and catch basins shall be installed at elevations indicated on the plans unless changed by the S&WB Engineer. All mains must be laid continuously from manhole to manhole, laid from the low end of the system with the bells facing upstream, and must be of the same size pipe diameter.

3. After the sheeting and/or foundation lumber is placed, the pipe shall be laid on a smooth bed of approved bedding material. The bedding material shall be extended under, around, and over the top of the pipe and compacted in layers not greater than 6 in. by a mechanical vibrating compactor approved by the S&WB Engineer until a minimum of 95% standard proctor density is attained for the full width of the trench. The bedding material shall be placed and compacted under the pipe haunches to provide maximum side support to the pipe in order to avoid displacement and misalignment of the pipe. The S&WB Engineer reserves the right to approve the type of bedding material to be used.

4. Bedding and foundations for mains shall conform to the latest revision of S&WB Dwg. Nos. D-3809, D-3810, D-3933, or D-3934. Standard sheeting & bracing when required, shall comply with S&WB Dwg. No. 4697-E5A.

5. Concrete storm drainage shall be installed in accordance with ASTM C1479-01.

6. All concrete pipe 36 in. in diameter and smaller shall be connected to the main drain or box canal with a stub that has been grouted into the wall in accordance with S&WB Dwg. No. 8178-SD.

7. Tapping of pipe smaller than 42 in. in diameter shall not be allowed when laying new lines, and shall be permitted on existing lines only with the approval of the S&WB Engineer, and only when the diameter of the hole does not exceed 1/3 the diameter of the pipe that is being tapped. The spigot end must be set into the main, trimmed flush on the inside, and grouted properly inside and out. Coring of reinforced concrete drain mains will be allowed only with the use of a hole saw that is equipped with a circular blade capable of cutting the exact size of the hole required. The inside of the existing main shall remain smooth after the core is complete. For either coring or tapping, only one connection will be allowed for each length of pipe, the core or tap must be made in the central one-half of the main, and the hole that is made must have a minimum edge distance of one foot from the end of the joint. All branch drains shall be tied in using factory-fabricated fittings. If plastic pipe is connected into concrete pipe, a sand impregnated PVC bell, approved by the S&WB Engineer, must be set into the concrete pipe, trimmed on the inside, and properly grouted in place.

8. When laying new drains, filter fabric shall be used around the joints of drain lines for all new construction or repair work on an existing line. Edges of fabric shall be wrapped around the entire joint with 12 in. minimum overlap and 12 in. minimum on each side of the joint, and shall be secured to the pipe in a manner acceptable to the S&WB Engineer. The filter fabric shall be DOTD Class C or D, non-woven pervious sheets of plastic yarn MiraFi 170N, or an equal approved by the S&WB Engineer.

9. Rub-R-Nek as manufactured by K.T. Snyder Co. or equal shall be used as the jointing material for all arch pipe and all other pipe that does not have rubber gasket joints. Two layers of Rub-R-Nek (or other approved material) per joint shall be used to provide a double seal. Products that are submitted as equals must be approved by the S&WB Engineer prior to installation.

IV. MANHOLES

1. Manholes shall conform to Section E of the General Specifications and the latest edition of S&WB Dwg. No. D-870. Short sections of pipe (maximum of 18 in.) with bell fittings and water stops, as recommended by the manufacturer and as shown on S&WB Dwg. No. 8178-SD, shall be used as connectors for brick manholes. KOR-N-SEAL Boots, or approved equal as shown on S&WB Dwg. No. 8178-SD, shall be used for precast manhole connections.

2. Manhole steps shall conform to S&WB Dwg. No. D-1359.

3. Abandoned mains must be plugged in the manhole. Walls of abandoned manholes shall be removed to a minimum of 2 ft. below finished grade and the abandoned manholes must be filled with pumped sand and flooded. Castings and covers are to be removed and returned to the S&WB Central Yard, 2900 Peoples Ave N.O. LA 70122.

4. All manhole foundation slabs shall be placed on a 6 in. layer of Class 57 bedding material in accordance with S&WB Dwg. No. D-870.

V. CATCH BASINS

1. Catch basins shall be of the type required by the S&WB Dwg. Nos. D-873 and D-873A. All single catch basin leads shall be a minimum of 12 in. diameter. All leads from single catch basins shall be connected to the main line with a wye fitting or manhole unless otherwise approved by the the S&WB Engineer.

2. All double catch basins shall have a 15 in. diameter lead terminating in a manhole or a wye. The two sections of the double catch basin shall be connected with a 15 in. pipe through the center wall as shown in S&WB Dwg. No. D-873A.

3. All abandoned catch basin leads must be plugged at the main line.

VI. CONNECTIONS

1. Tie-ins from existing private connections to the main shall be installed using 6 in. solid wall SDR 26 PVC pipe and shall connect to the concrete wye using a FERNCO or equal coupling. The use of saddles will not be permitted. Private connections shall have a minimum of 2.5 ft. of cover, measured at the gutter line. Collector lines shall be allowed on a case-by-case basis to provide for the collection and delivery of storm drainage flow from private property to a tie-in point in the storm drain system, such as a catch basin. These lines shall be a minimum of 8 in. in diameter to provide for maintenance access and shall comply in all other areas with these specifications.

VII. TESTING AND INSPECTION

1. All installation of drain work will be performed under the inspection of, and to the satisfaction of the S&WB inspector throughout the course of the work.

2. The S&WB is responsible for the inspection and maintenance only on drainage lines 36 in. diameter and larger.

3. All S&WB maintained drain work must be accepted by the S&WB Inspector at the completion of installation and prior to backfilling. At the direction of, and physically eye witnessed by the S&WB Inspector, the Contractor shall inspect the installed drainage utilizing a remote operated close circuit camera. Acceptance of any portion of the drainage system by the S&WB Inspector is also subject to the results of any required video inspection.

4. An infiltration test that does not exceed a rate of 250 gallons per in. of diameter per mile, per 24 hours shall be conducted by the Contractor and observed by the S&WB representative. This test shall be performed only after the backfilled trench has remained flooded for at least 12 hours prior to the test. The trench shall remain flooded during the test. The Contractor shall furnish all material, labor and equipment necessary for this test. If an infiltration test is not performed prior to paving, an exfiltration test may be required as directed by the S&WB Engineer.

VIII. FINAL ACCEPTANCE

1. Before final inspection of the system, the Contractor shall submit an "AS-BUILT" drawing to the Engineer showing any changes in line or grade from the original drawings, as well as showing the location of all house connections, in accordance with S&WB requirements. It will be the Contractor's responsibility to certify that the "AS-BUILT" drawings are correct. Any inaccuracy as determined by the S&WB Engineer in the "AS-BUILT" drawings shall be corrected at the cost of the Contractor.

2. The Contractor must contact the S&WB to set a date for final inspection. In the event the Contractor calls for an inspection and the work is not adequately complete, a new inspection date will then be set at the discretion of the S&WB Inspector.

3. Final acceptance of the system will be subject to a 1 year maintenance period following final acceptance of the project by the S&WB.

REV.	DATE	DESCRIPTION	BY

SEWERAGE AND WATER BOARD OF NEW ORLEANS

SPECIFICATIONS FOR INSTALLATION OF DRAIN MAINS

DR.	Q. FENG	GENERAL SUPERINTENDENT
TRC.		
CK.	B. JONES	
AP.	J. BECKER	DWG. NO. 7260-D
SCALE	NONE	
DATE	05-05-05	SET NO. / SHEET NO.

SHEET NUMBER
302 of 303

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering
DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC.
527 W. ESPLANADE AVE., STE. 200
KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	302

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

SWB STANDARD DRAWINGS

DEPARTMENT OF PUBLIC WORKS

SEWER NOTES

I. GENERAL

1. It is to be understood that all references to "The Sewerage and Water Board (S&WB) Engineer" throughout this document shall refer to the General Superintendent of the S&WB or his appointed representative, and all references to "The S&WB Inspector" throughout this document shall refer to the inspector assigned to the project by the S&WB Engineer. The S&WB Inspector shall represent the S&WB Engineer in his/her absence. It is also to be understood that all references to S&WB drawings and specifications refer to the latest edition or revision.

2. ~~The Contractor shall have an individual with a Wastewater Collection Class IV license, obtained through the Louisiana Department of Health and Hospitals, on site at all times during the installation of the sewer lines and appurtenances.~~ N/A

3. The Contractor shall furnish all labor, supervision, materials, and equipment required for the installation of new sewer mains, manholes, house connections, etc., required by the project drawings and specifications.

4. All workmanship and materials shall conform to the General Specifications of the S&WB. Any modification from the design drawings must be approved by the S&WB Engineer prior to construction.

5. Prior to the installation of any S&WB facilities, the entire area within the public right-of-way, including the entire width of any servitudes adjacent to the front property line, plus an additional 3 ft. must be filled to the finished grade.

6. All elevations shown on the drawings refer to Cairo Datum in which 0.00 ft. NGVD is equal to 20.43 ft. Cairo Datum.

7. It is to be understood that wherever sand is stipulated in the specifications or drawings, it shall refer to pumped Mississippi River sand or any natural sand deposit meeting the requirements of AASHTO A-3 or ASTM-SP.

8. The Contractor shall notify the General Superintendent (625 St. Joseph St. N.O. LA 70165), with copies to the Chief of Engineering (8800 S. Claiborne Ave N.O. LA 70118), and the Chief of Construction Administration and Inspection (8800 S. Claiborne Ave N.O. LA 70118) of the S&WB in writing not less than three nor more than ten days in advance of starting the project so as to schedule the inspection of any S&WB work. Failure to do so prior to starting this work shall require the Contractor to expose the bedding on all pipe, or any other concealed work previously installed in order to obtain the approval of the S&WB Inspector. Any work performed without an S&WB Inspector's approval will not be accepted by the S&WB nor tied into the S&WB's collection system.

9. The location of existing utilities shown on the drawings should be considered approximate. The Contractor shall verify the elevation of all existing structure inverts and the location of all existing utilities prior to the start of work, and shall be responsible for any negligence on his part in protecting them. The location of sewer and water house connections can be obtained from the S&WB.

10. All S&WB maintained sewer work performed by the Contractor would be subject to the approval of the S&WB Inspector. The Contractor shall provide the S&WB Inspector full access to the work throughout construction and abide by any justifiable S&WB Inspector's request to expose any and all work installed by the Contractor.

11 Backfill material for all utilities shall be sand either compacted mechanically in 6 in. lifts or flooded in 3 ft. lifts. Compaction shall be performed to 95% maximum dry density, near optimum water content, and shall meet the compaction characteristics of ASTM D-1557.

12. Specifications for sewer force main pipe shall be job specific.

II. PIPE MATERIAL

1. Material for sewer mains shall be solid wall PVC pipe, manufactured in accordance with ASTM D-3034 specifications and to a SDR (strength dimension ratio) of 26 with elastomeric gaskets. The elastomeric gaskets and retainer rings shall be installed by the manufacturer in accordance with ASTM D-3212 and F-477.

2. The fittings for solid wall PVC pipe shall be the same inside diameter as the solid wall PVC with an SDR of 35.

3. PVC sewer mains, sizes 18 in. through 27 in. shall be solid wall PVC pipe conforming to ASTM F-679.

4. The maximum allowable compression for installed PVC sewer pipe is 7.5 percent (7.5%) of its original vertical inside diameter. Pipe exceeding this allowable compression shall be removed and replaced with new pipe, reinstalled at the Contractor's expense.

5. At points of tie-ins to the existing system, the new pipe material should match the existing. If the new material does not match the existing material, the connection shall be made with the use of a coupling and bushing adapter intended for that purpose, ARC (Mission Rubber Co.), FERNCO, or equal, conforming to ASTM C-425.

6. Ductile iron pipe shall be used where specified on the construction drawings and shall conform to Section II-B, "Ductile Iron" of the S&WB 7260 Water Notes except that the interior lining shall be polyethylene, "Polybond", or approved equal, and must be factory installed with 40 mils nominal thickness.

III. SEWER MAIN INSTALLATION

1. The sewer main must be laid in a separate trench from all other utilities. The minimum allowable horizontal distance between the sewer main and the water main shall be 6 ft., and a minimum vertical separation of 18 in. as stipulated in Louisiana Administrative Code Title Fifty-One (51) Public Health-Sanitary Code Part XII Water Supplies. The minimum allowable horizontal distance between the sewer main and other utilities shall be 3 ft., and a minimum vertical clearance of 12 in. above or 12 in. below other utilities. For payment purposes, depths of sewer mains shall be determined by the average measurements from inverts to the top of castings at finished grade of connecting manholes. All dimensions between utilities shall be measured from outside diameter to outside diameter.

2. Sewer mains and interconnecting manholes shall be installed at elevations indicated on the plans unless changed by the S&WB Engineer. All mains must be laid continuously from manhole to manhole, laid from the low end of the system with the bell facing upstream, and must be of the same size pipe diameter. The minimum depth of a sewer main shall be 5.5 ft. from surface to invert.

3. Installation of the solid wall PVC pipe shall conform to Section D, "The Construction of Sewers," of the General Specifications of the S&WB. The trench bottom shall be smooth and free from rocks, roots, etc. After the sheeting and/or foundation lumber is placed, the pipe shall be laid on a smooth bed of approved bedding material. Bedding and foundations for mains and standard sheeting and bracing shall comply with S&WB Dwg. No. 4697-E5A. The bedding material shall be extended under, around, and over the top of the pipe and compacted in layers not greater than 6 in. by a mechanical vibrating compactor approved by the S&WB Engineer until a minimum of 95% standard proctor density is attained at or near optimum moisture content for the full width of the trench. The bedding material shall be Class I Angular Material (1/4 in. to 1-1/2 in.), ASTM D2321 or ASTM C33. The S&WB Engineer reserves the right to approve the type of bedding material to be used.

4. Filter fabric shall be installed around the bedding and under the backfill in all sewer installations as shown in S&WB Dwg. No 4697-E5A, and conform by weight to ASTM D1910. The filter fabric shall be DOTD Class C or D, non-woven pervious sheets of plastic yarn MiraFi 170N, or an equal approved by the S&WB Engineer, constructed so the yarns will retain their relative position with respect to each other. Edges of the fabric shall be finished to prevent the outer yarn from pulling away from the fabric. The fabric shall be installed as follows:

   a. After the trench is excavated, the foundation lumber shall be placed in the bottom of the trench as shown on the standard drawings. The filter fabric shall be cut to the needed width, including allowances for "loose" placement in the trench, with a double overlap on top of the bedding material after placement. The fabric shall be laid over the foundation lumber in the trench along the pipes alignment with an 18 in. minimum overlap at the ends of subsequent lengths. Care should be taken to place the fabric tightly against the soil so that no voids occur outside the fabric. Wrinkles or folds should be avoided. The sides of the fabric which will be used as a double-top overlap should temporarily be pinned to the sides of the trench.

   b. After installing the fabric, an initial 6 in. layer of bedding material shall be placed and compacted to the proper grade before placing the sewer pipe. The remainder of the bedding material shall then be placed around and above the pipe and compacted. Compaction is required to seat the fabric and bedding material against the trench wall and to reduce settlement.

   c. After compaction, the two edges of the filter fabric shall be unfastened and overlapped for the full width of the trench on top of the bedding material. The backfill material shall then be placed on top of the filter fabric and compacted.

IV. MANHOLES

1. Manholes shall conform to Section D of the General Specifications and S&WB Dwg. Nos. D-870. Short sections of pipe with bell fittings and water stops, as recommended by the manufacturer and as shown on S&WB Dwg. No. 8178-SD, shall be used as connectors for brick manholes. As an alternative, a sand impregnated PVC stub, approved by the S&WB Engineer, may be used and grouted in place using a type three high early strength cement, or quick setting EMBECO, or similar material approved by the S&WB Engineer. KOR-N-SEAL Boots, or approved equal, as shown on S&WB Dwg. No. 8178-SD, shall be used for precast manhole pipe connections.

2. Manhole steps shall conform to S&WB Dwg. No. D-1359.

3. Abandoned sewer mains must be plugged in the manhole. Walls of abandoned manholes shall be removed to a minimum of 2 ft. below finished grade and the abandoned manholes must be filled with sand and flooded. Castings and covers are to be removed and returned to the S&WB Central Yard, 2900 Peoples Ave N.O. LA 70122.

4. All manhole foundation slabs shall be placed on a 6 in. layer of crushed stone or approved equal bedding material in accordance with S&WB Dwg. No. D-870.

V. HOUSE CONNECTIONS

1. House Connections shall be installed using 6 in. solid wall SDR 26 PVC pipe extended to the property line as shown on S&WB Dwg. No. 6312-E5. The use of saddles will not be permitted; all such connections shall be made with the use of approved fittings. All pipe and fittings shall be the same material as the sewer main unless otherwise approved by the S&WB Engineer. House Connections shall have a minimum of 3.5 ft. and a maximum of 4.5 ft. of cover, measured from the gutter line and from the ground surface at the property line. The house connection shall end at the property line or extend through any proposed servitudes adjacent to the property line with a rubber gasketed plastic cap. House connections shall not require bracing, foundation lumber, or bedding. The location of all sewer house connections shall be imprinted on the curb with an "S", 3 in. high and ¼ in. deep as shown on S&WB Dwg. No. 6312-E5.

VI. TESTING AND INSPECTION

1. All installation of sewer mains and related appurtenances will be performed under the inspection of, and to the satisfaction of the S&WB Inspector throughout the course of the work.

2. Infiltration rate for newly installed gravity mains shall be zero gallons. Infiltration test rates for force mains shall not exceed a rate of 250 gallons per in. of diameter per mile, per 24 hours, shall be conducted by the Contractor and observed by the S&WB representative. This test shall be performed only after the backfilled trench has remained flooded for at least 12 hours prior to the test. The trench shall remain flooded during the test. The Contractor shall furnish all material, labor and equipment necessary for this test. If an infiltration test is not performed prior to paving, an exfiltration test may be made as directed by the S&WB Engineer. Any detectable leak shall be repaired by the Contractor at the Contractor's expense. The infiltration test is to be performed by the Contractor and shall be witnessed by the S&WB Inspector.

3. At the completion of backfilling, and prior to final acceptance of the sewer, 100% of the sewer main must be mandreled. This mandrel work shall be witnessed by the S&WB Inspector and performed by the Contractor at no direct pay. The S&WB will provide the mandrels for all tests and the Contractor shall place the pull lines in the mains. The Contractor will have the option of passing the mandrels at any time after final backfill of the trenches but prior to final acceptance. It is required that a S&WB Representative and the Contractor witness the actual mandreling test(s).

4. The sewer line shall be cleaned and videoed prior to the installation of the wearing course. It is required that a S&WB Representative and the Contractor physically eye-witness the actual cleaning and TV/video test(s).

5. The Contractor will be required to repair, at his own expense and in an approved manner, all defects in workmanship or material disclosed by these inspections prior to obtaining final acceptance. The Contractor shall also bear all cost associated with the re-testing, including any cost incurred by the S&WB.

VII. FINAL ACCEPTANCE

1. Before final inspection of the system, the Contractor shall submit an "AS-BUILT" drawing to the Board showing any changes in line or grade from the original drawings, as well as showing the location of all house connections, in accordance with S&WB requirements. It will be the Contractor's responsibility to certify that the "AS-BUILT" drawings are correct. Any inaccuracy as determined by the S&WB in the "AS-BUILT" drawings shall be corrected at the cost of the Contractor.

2. The Contractor must contact the S&WB to set a date for final inspection. In the event the Contractor calls for an inspection and the work is not adequately complete, a new inspection date will then be set at the discretion of the S&WB Inspector.

3. Final acceptance of the system will be subject to a 1-year maintenance period following final acceptance of the project by the S&WB.

REV.	DATE	DESCRIPTION	BY

SEWERAGE AND WATER BOARD OF NEW ORLEANS

SPECIFICATIONS FOR INSTALLATION OF SEWER MAINS

DR.	Q. FENG	GENERAL SUPERINTENDENT
TRC.		
CK.	B. JONES	
AP.	J. BECKER	
SCALE	NONE	DWG. NO. 7260-S
DATE	05-05-05	SET NO. / SHEET NO.

SHEET NUMBER 303 of 303

NO.	DATE	REVISION DESCRIPTION	BY

digital engineering — DIGITAL ENGINEERING & IMAGING, INC. 527 W. ESPLANADE AVE., STE. 200 KENNER, LA 70065

DIGITAL ENGINEERING & IMAGING, INC. 527 W. ESPLANADE AVE., STE. 200 KENNER, LA 70065

DESIGNED	MEP/MSC	SCALE	AS NOTED
CHECKED	RJD/AKW		
DETAILED	MEP/MSC	DATE	OCTOBER 2021
CHECKED	FTL/AKW	SHEET	303

CITY OF NEW ORLEANS SEWERAGE AND WATERBOARD
PROJECT NO. TM-005

SWB STANDARD DRAWINGS

DEPARTMENT OF PUBLIC WORKS

DWG PATH: S:\(660) NOSWB\660-0300.01 CC. Broadmoor, Fountainbleu TM\20 Design\CAD\
DWG NAME: 660-0300.01_301-303_SWB LAYOUT TAB: 303 DATE of PLOT: Friday, November 05, 2021 @ 9:54am