



Bulletin

Date January 14, 2025
Project Name Troy School District – New Smith Middle School
TMP Project No. 22102
Bid Package No. 03
Bulletin No. Nine (9)

This Bulletin, issued after the award of contracts, describes a proposed deviation from the contract documents for the above project(s). All work shall conform with the standards and intent of the contract documents. Each contractor whose work is affected shall submit, within (14) days, an itemized proposal for performing this work. This Bulletin IS NOT an authorization for making a change.

The following Drawing(s) and Attachment(s) are issued with this Bulletin:

Drawing No(s): C-1.0, C-1.1, C-1.2, C-1.3, C-1.4, C-2.0, C-2.1, C-3.0, C-3.1, C-3.2, C-3.3, C-3.4, C-3.5, C-4.0, C-4.1, C-4.2, C-4.3, C-4.4, C-5.0, C-5.1, C-5.2, C-5.3, C-6.0, C-6.1, C-6.2, C-6.3, C-6.4, C-6.5, C-6.6, C-7.0, C-7.1, C-7.2, C-7.3, C-7.4, C-8.0, C-8.1, C-8.2
Attachment(s): None

Item No. Civil Drawing Changes

CD-1 Refer to Drawing Nos. C-1.0, C-1.1, C-1.2, C-1.3, C-1.4 (reissued):
A. Reissue sheets, complete.

CD-2 Refer to Drawing Nos. C-2.0, C-2.1 (reissued):
A. Reissue sheets, complete.

CD-3 Refer to Drawing Nos. C-3.0, C-3.1, C-3.2, C-3.3, C-3.4, C-3.5 (reissued):
A. Reissue sheets, complete.

CD-4 Refer to Drawing Nos. C-4.0, C-4.1, C-4.2, C-4.3, C-4.4 (reissued):
A. Reissue sheets, complete.

CD-5 Refer to Drawing Nos. C-5.0, C-5.1, C-5.2, C-5.3 (reissued):
A. Reissue sheets, complete.

CD-6 Refer to Drawing Nos. C-6.0, C-6.1, C-6.2, C-6.3, C-6.4, C-6.5, C-6.6 (reissued):
A. Reissue sheets, complete.

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Page 2 of 2

- CD-7 Refer to Drawing Nos. C-7.0, C-7.1, C-7.2, C-7.3, C-7.4 (reissued):
 A. Reissue sheets, complete.
- CD-8 Refer to Drawing Nos. C-8.0, C-8.1, C-8.2 (reissued):
 A. Reissue sheets, complete.

END OF BULLETIN NO. 9 - BID PACKAGE NO. 03

PROFESSIONAL
Anthony

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

















New Smith Middle School Bid Package No. 03



DRAWING TITLE
TOPOGRAPHIC
SURVEY - 1 OF 3

APPROVED

C-1.0

LEGEND:


—OH—ELEC.—VY—OH—	EX. OH. ELEC. POLE & GUY WIRE
—UG—CATV—	EX. UG. CABLE TV PEDESTAL
—UG—COMM—	EX. UG. COMMUNICATION LINE, PEDESTAL & MANHOLE
—UG—ELEC.—  —	EX. UG. ELEC. MANHOLE, METER & HANDHOLE
EX. GAS LINE	
 	EX. GAS VALVE & GAS LINE MARKER
	EX. TRANSFORMER & REGULATOR
	EX. WATER VALVE
	EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
	EX. WATER VAULT BOX & SHUT-OFF
EX. SANITARY SEWER	
	EX. SANITARY CLEANOUT & MANHOLE
	EX. STORM SEWER MANHOLE
EX. COMBINED SEWER	
EX. CLEANDT & A ROOF LINE	
	EX. SOAKAWAY, RINKING & BEEHIVE CATCH BASIN
	EX. YARD DRAIN & ROOF DRAIN
	EX. UNIDENTIFIED STRUCTURE
	EX. MAILBOX, SIGN & LIGHTPOLE
	EX. FENCE
	EX. GUARD RAIL
	EX. SPOT ELEVATION
	EX. CONTOUR
	EX. WETLAND

	×	IRON FOUND / SET
	SP	NAIL FOUND/ NAIL & CAP SET
BRASS PLUG SET		
MONUMENT FOUND / SET		
SECTION CORNER FOUND		
RECORDED / MEASURED / CALCULATED		

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA OF THE FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

 ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

 OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT TH N 00-10-00 W 39.24 FT TO BEG 13.79 A

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:
T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9
ALSO LOT 10 EXC W 357.82 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NA)

(PEA) BM #302 (CITY OF TROY) BM #0319
ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT
OF HOUSE #5874.
ELEV. - 743.74(M) 743.63(R)

(PEA) BM #303 (CITY OF TROY) BM #3169
ARROW ON HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF
HOUSE #5806.
ELEV. - 741.04(M) 740.94(R)

BM #304
ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF LIVERNOIS ROAD
AND BLANCHE STREET, OPPOSITE SIDE OF HOUSE #5720.
ELEV. - 741.26



0 20 40 80

SCALE: 1" = 40'



CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

REGISTRATION SEAL



CONSULTANT

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www.peagroup.com

PROJECT TITLE

New Smith Middle School Bid Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE
TOPOGRAPHIC
SURVEY - 2 OF 3

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RCOC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR

DRAWN

CHECKED

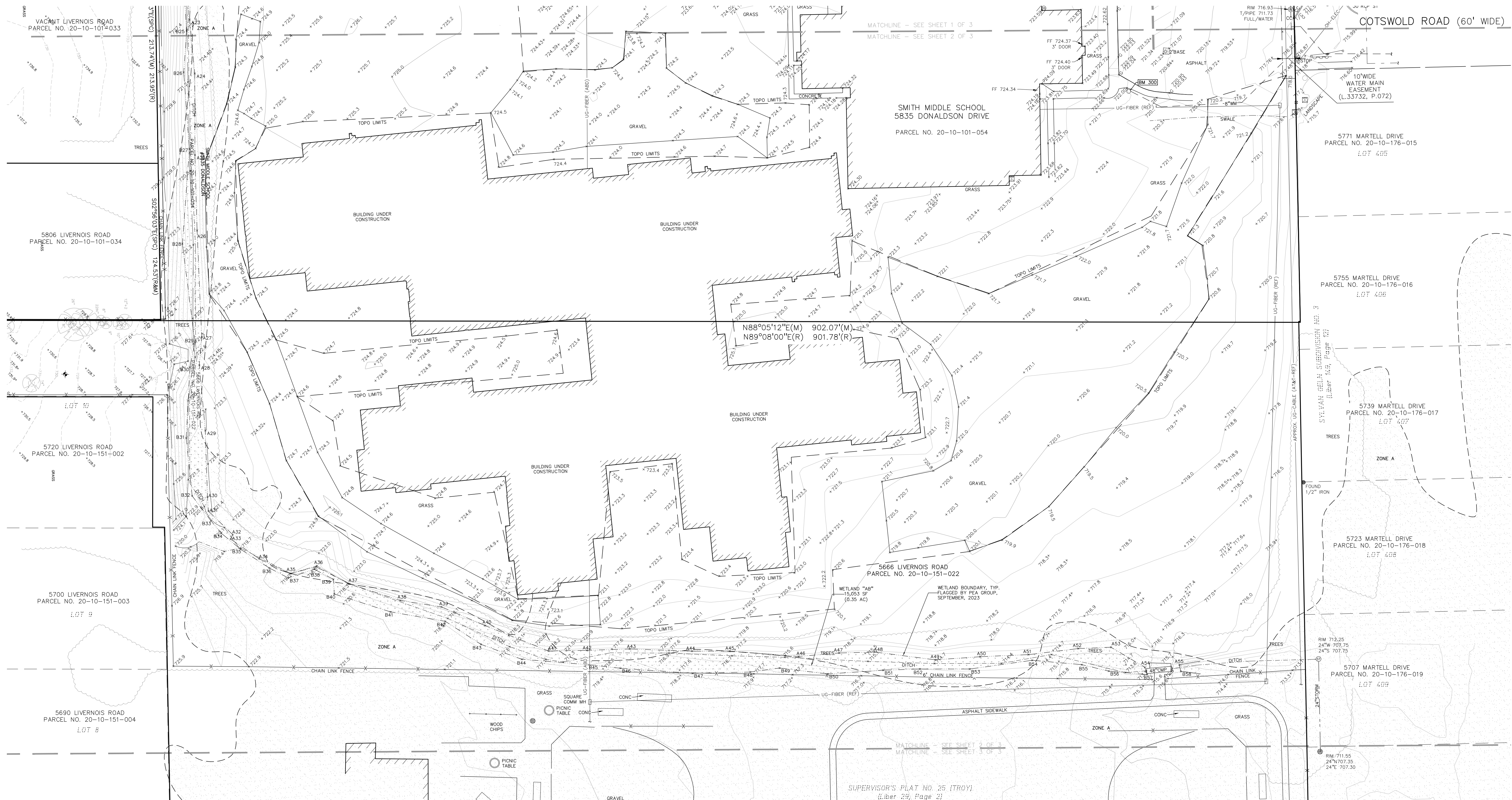
APPROVED

PROJECT NO.

22102

DRAWING NO.

C-1.1



0 20 40 80
SCALE: 1" = 40'



CAUTION!!
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STATE OF MICHIGAN
★ JOSEPH B. WYWROT ★
ENGINEER
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6201045574
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LEGAL DESCRIPTION:
(PER OAKLAND COUNTY)

PARCEL ID 20-10-101-031

Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 780.53 FT & S 88-67-00 E 33 FT FROM NW SEC COR, TH S 89-02-00 E 390.03 FT, TH S 00-10-00 E 130 FT, TH N 89-02-00 W 390.41 FT, TH N 130 FT TO BEG EXC W 27 FT

PARCEL ID 20-10-101-032

Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.05 FT & S 86-57-00 E 33 FT & S 339.48 FT FROM NW SEC COR, TH S 89-02-00 E 390.41 FT, TH S 00-10-00 E 169.24 FT, TH N 89-04-00 W 390.87 FT, TH N 169.74 FT TO BEG 1.52 A

PARCEL ID 20-10-101-033

Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 1090.39 FT FROM NW SEC COR, TH S 89-04-00 E 423.87 FT, TH S 00-10-00 E 213.95 FT, TH N 89-08-00 W 424.42 FT, TH N 215.03 FT TO BEG

PARCEL ID 20-10-101-054

Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4, THE NORTH 60 FEET OF THE WEST 364.77 OF THE PARCEL BEG AT PT DIST S 571.05 FT & S 88-57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-04-00 E 604.86 FT, TH S 00-10-00 E 683.20 FT, TH N 89-08-00 W 601.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG

FLOODPLAIN NOTE:

BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE "X", AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 26125C032P DATED SEPTEMBER 29, 2006.

BENCHMARKS:

(GPS DERIVED - NAVD83)

(PEA) BM #302 (CITY OF TROY) BM #3091
ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #5874.
ELEV. - 743.74(M) 743.63(R)

(PEA) BM #303 (CITY OF TROY) BM #3169
ARROW ON HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #5808.
ELEV. - 741.04(M) 740.94(R)

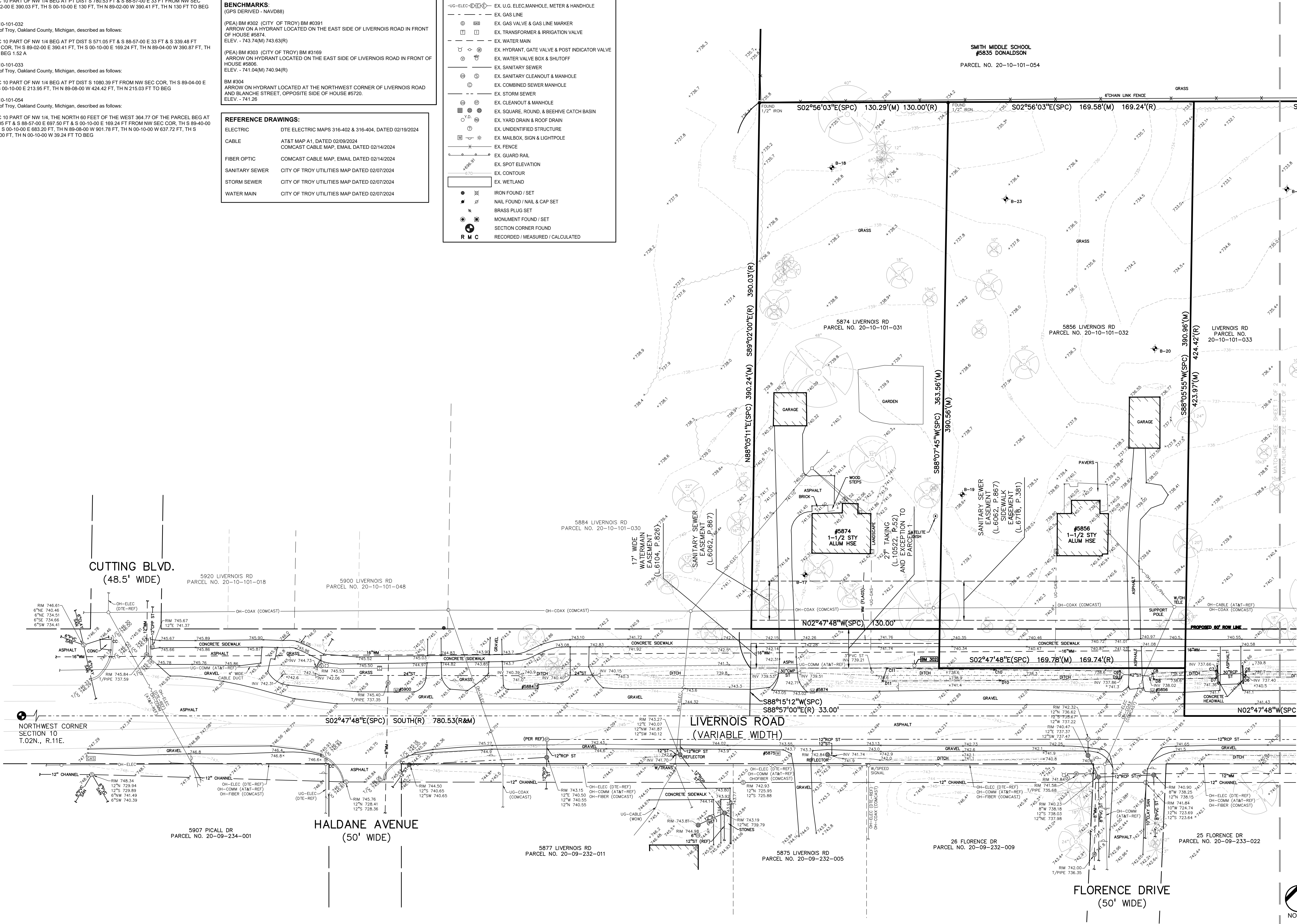
BM #304
ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF LIVERNOIS ROAD AND BLANCHE STREET, OPPOSITE SIDE OF HOUSE #5720.
ELEV. - 741.26

REFERENCE DRAWINGS:

ELECTRIC	DTE ELECTRIC MAPS 316-402 & 316-404, DATED 02/19/2024
CABLE	AT&T MAP A1, DATED 02/09/2024 COMCAST CABLE MAP, EMAIL DATED 02/14/2024
FIBER OPTIC	COMCAST CABLE MAP, EMAIL DATED 02/14/2024
SANITARY SEWER	CITY OF TROY UTILITIES MAP DATED 02/07/2024
STORM SEWER	CITY OF TROY UTILITIES MAP DATED 02/07/2024
WATER MAIN	CITY OF TROY UTILITIES MAP DATED 02/07/2024

LEGEND:

-OH-ELEC-W-O-	EX. OH. ELEC. POLE & GUY WIRE
-UG-CATV-	EX. U.G. CABLE TV & PEDESTAL
-UG-COMM-	EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
-UG-ELEC-	EX. U.G. ELEC. MANHOLE, METER & HANDHOLE
-	EX. GAS LINE
⊗	EX. GAS VALVE & GAS LINE MARKER
⊠	EX. TRANSFORMER & IRRIGATION VALVE
-	EX. WATER MAIN
⊗	EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
⊗	EX. WATER VALVE BOX & SHUTOFF
⊗	EX. SANITARY SEWER
⊗	EX. SANITARY CLEANOUT & MANHOLE
⊗	EX. COMBINED SEWER MANHOLE
⊗	EX. STORM SEWER
⊗	EX. CLEANOUT & MANHOLE
⊗	EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
⊗	EX. YARD DRAIN & ROOF DRAIN
⊗	EX. UNIDENTIFIED STRUCTURE
⊗	EX. MAILBOX, SIGN & LIGHTPOLE
⊗	EX. FENCE
⊗	EX. GUARD RAIL
⊗	EX. SPOT ELEVATION
⊗	EX. CONTOUR
⊗	EX. WETLAND
⊗	IRON FOUND / SET
⊗	NAIL FOUND / NAIL & CAP SET
⊗	BRASS PLUG SET
⊗	MONUMENT FOUND / SET
⊗	SECTION CORNER FOUND
⊗	RECORDED / MEASURED / CALCULATED



TMP ARCHITECTURE INC

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REGISTRATION SEAL



CONSULTANT

PEA
GROUP

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PROJECT TITLE

**New Smith Middle
School
Bid Package No. 03**

**Troy School District
Troy, Michigan**

DRAWING TITLE

**TOPOGRAPHIC
SURVEY -
LIVERNOIS ROAD
- 1 OF 2**

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RODC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN J.W

CHECKED TD

APPROVED TD

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-1.3



CAUTION!
THE LOCATION AND DEPTH OF EXISTING UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED BY THE CONTRACTOR OR ARCHITECT. THEREFORE, THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND TYPE OF UTILITIES PRIOR TO THE START OF CONSTRUCTION.

FLOODPLAIN: PER FLOOR FINISHANCE RATE MAP NUMBER 261250C32F, DATED SEPTEMBER 29, 2006. BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN: SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALLED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD AREAS OF SPECIAL FLOOD HAZARD UNDEVELOPED ZONES A, NE, AH, AO, AR, ASE, Y AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.	
	ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.
	OTHER AREAS
	ZONE X
	AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.
LEGAL DESCRIPTION: PARCEL ID: 20-10-101-054 And in the City of Troy, Oakland County, Michigan, described as follows: T2N, R12E, S1E; SEC 10 OF NW 14 BEG AT PT S D17 05' 05" FT & N88°50' 00" E 697' 00" FT TO CORNER OF LOT 10, SEC 10, T2N, R12E, S1E; TH S 89°40' 00" E 624' 96" FT; TH S 90°10' 00" E 683' 00" FT; TH N 88°58'-00" W 90' 17" FT; TH N 10°-00' 00" W 637' 72" FT, TH S 89°40' 00" E 275' 00" FT, TH N 10°-00' 00" W 39' 24" FT TO BEG 13.78 A	
PARCEL ID: 20-10-151-022 And in the City of Troy, Oakland County, Michigan, described as follows: T2N, R12E, SEC 10 SUPERVISOR'S PLAT NO 20 LOTS 5, 6 & 7, ALSO 0' 00" FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 357' 62" FT OF S 104' 25" FT	
BENCHMARKS: (GPS DERIVED - NAVD83) (PEA) BM #302 (CITY OF TROY) BM #0391 ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #606. ELEV. = 743.74(M) 743.63(R) (PEA) BM #303 (CITY OF TROY) BM #3169 ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #606. ELEV. = 741.04(M) 740.41(R) BM #304 ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF LIVERNOIS ROAD AND BLANCHE STREET, OPPOSITE SIDE OF HOUSE #5720. ELEV. = 741.26	
GENERAL DEMOLITION NOTES: THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT: 1. ALL MATERIAL TO BE REMOVED, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER, NO ON-SITE BURY OR BURN PIT SHALL BE ALLOWED. 2. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES. 3. STAGING/PHASES OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND THE CONTRACTOR PRIOR TO CONSTRUCTION. 4. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A RESULT TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION SHALL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING DIMENSIONS. THE EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID. 5. REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN, THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, REINFORCED SLABS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES, ETC. 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES. 7. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE PUBLIC AND SAFELY MAINTAIN TRAFFIC PER AGENCY REQUIREMENTS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. 8. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES TO CONFIRM THAT UTILITY LEADS HAVE BEEN TAKEN OUT OF SERVICE PRIOR TO DEMOLITION. 9. ALL BUILDING GAS LEADS, METERS AND ASSOCIATED EQUIPMENT SHALL BE REMOVED AS SHOWN ON THE PLANS. COORDINATE ALL ASSOCIATED WORK WITH THE APPROPRIATE UTILITY COMPANY. 10. REMOVE ALL OVERHEAD AND UNDERGROUND ELECTRICAL LINES WITHIN THE AREA OF CONSTRUCTION AS SHOWN ON THE PLANS. COORDINATE SHUTDOWNS AND REMOVALS WITH ELECTRICAL SERVICE PROVIDER OR THE APPROPRIATE UTILITY COMPANY. (NOTE: PHONE AND CABLE TV SERVICES MAY ALSO BE LOCATED ON OVERHEAD LINES.) 11. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO MAINTAIN ACCESS THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL BE REQUIRED AS REQUESTED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION TO REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER. 12. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE CITY/COUNTY CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION OF BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.	
DEMOLITION LEGEND: ITEM TO BE REMOVED CURB/FENCE REMOVAL CONCRETE PAYMENT AND SIDEWALK REMOVAL GRAVEL REMOVAL AREA OR ITEMS TO BE REMOVED UTILITY REMOVAL ASPHALT REMOVAL SAWTOOTH LINE	
SYMBOLS: EROSION CONTROL: □ (SP--2) SILT FENCE ▨ (SP--9) TEMPORARY STONE ACCESS DRIVE ▧ (E--9) EROSION CONTROL BLANKET PREFER TO O.C.W.R.C.'S SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL DRILL DETAIL	



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REGISTRATION SEAL



CONSULTANT

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PROJECT TITLE
**New Smith Middle
School
Bld Package No. 03**

Troy School District
Troy, Michigan

DRAWING TITLE
**DEMOLITION AND
SESC PLAN - PHASE 1**

Previously Completed*

ISSUE DATES

	•
	•
	•
	•
	•
01-14-2025	BULLETIN 9
10-31-2024	CONSTRUCTION SET
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM #3
06-18-2024	CONSTRUCTION DOCUMENTS
03-11-2024	CITY REVIEW REVISIONS
02-08-2024	ADDENDUM 2
01-23-2024	BIDS
DATE:	ISSUED FOR:
DRAWN	<i>JW</i>
CHECKED	TD
APPROVED	TD

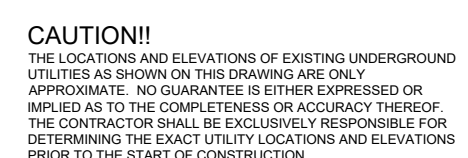
PROJECT NO.

22102

DRAWING NO.




C-2.0

FOR REFERENCE



REFER TO SHEET C-2.0 FOR SOIL EROSION MAINTENANCE SCHEDULE AND NOTES.

SYMBOLS: EROSION CONTROL:

	(SP-2) SILT FENCE
	(SP-9) TEMPORARY STONE ACCESS DRIVE
	(E-9) EROSION CONTROL BLANKET

REFER TO O.C.W.R.C. SOIL EROSION AND SEDIMENTATION CONTROL DETAILS SHEET FOR ALL DEVICE DETAILS.

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-2.1



REGISTRATION SEAL



t: 844.813.2949
www.peagroup.com

PROJECT TITLE

**New Smith Middle
School
Bld Package No. 03**

Troy School District
Troy, Michigan

DRAWING TITLE
**OVERALL DIMENSION &
PAVING PLAN**

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RCOC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

DRAWN J

CHECKED

APPROVED T

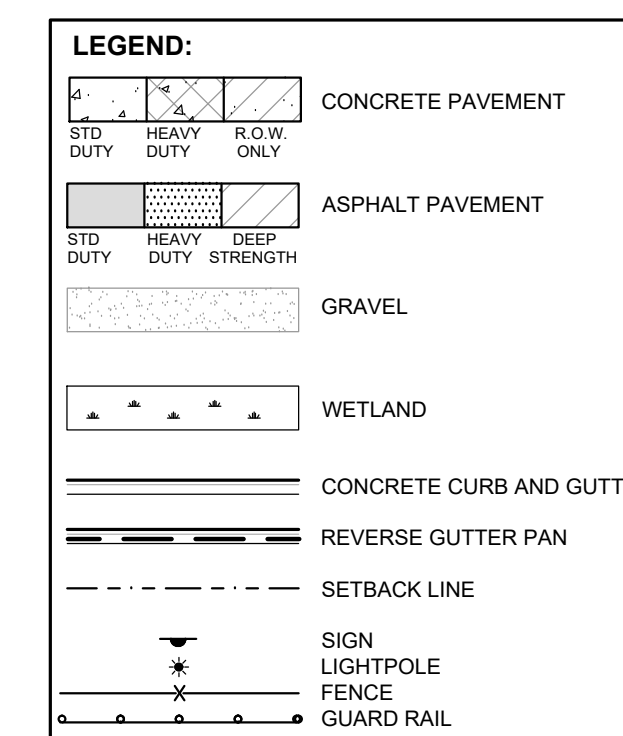
PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-3.0



GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 'XXX' FOOT INTERVALS OR AS DIRECTED BY THE FIELD OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

PARKING:

EXISTING PARKING SPACES: 168 SPACES (INCLUDING 5 ADA SPACES)

PROPOSED PARKING SPACES: 131 SPACES



CAUTION!!
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4-15-19

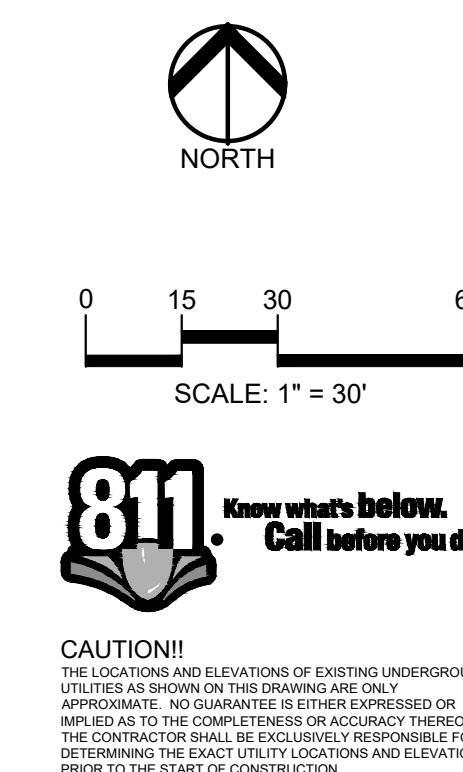
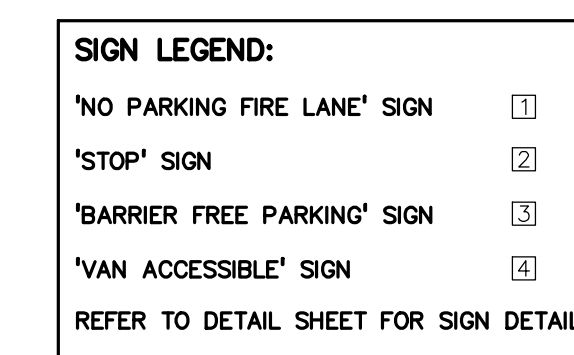
t: 844.813.2949
www.peagroup.com

**New Smith Middle
School
Bld Package No. 03**

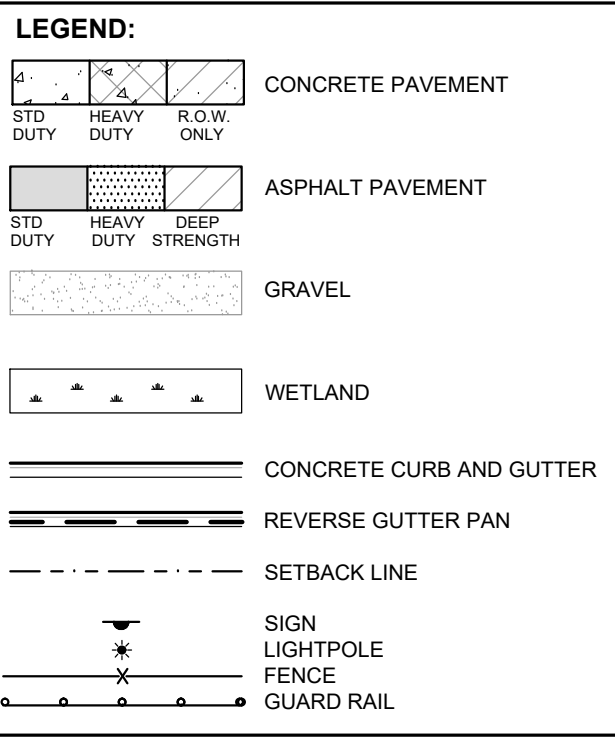
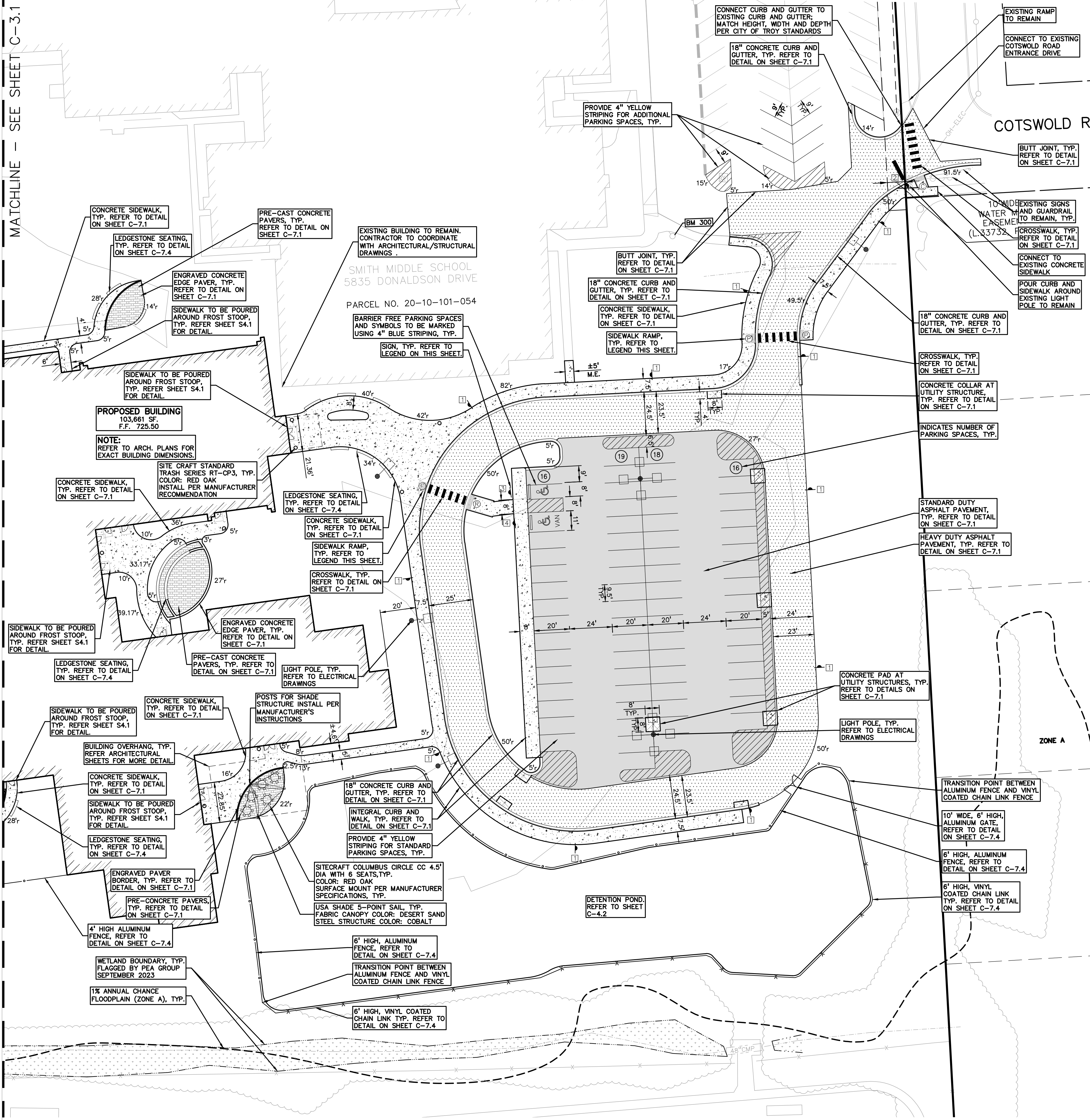
DRAWING TITLE
**DIMENSION & PAVING
PLAN - WEST**

DATE:	ISSUED FOR
DRAWN	JW
CHECKED	TD
APPROVED	TD

C-3.1



MATCHLINE - SEE SHEET C-3.1



- GENERAL NOTES:
- THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
 - "NO PARKING-FIRE LANE" SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100' FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
 - REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
 - REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

- SIDEWALK RAMP LEGEND:
- | | |
|------------------------|---|
| SIDEWALK RAMP 'TYPE R' | ① |
| SIDEWALK RAMP 'TYPE F' | ② |
| SIDEWALK RAMP 'TYPE P' | ③ |
| SIDEWALK RAMP 'TYPE C' | ④ |
- REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS
- NOTE: DETECTABLE WARNING SURFACE TO BE YELLOW FOR ALL RAMP.

- SIGN LEGEND:
- | | |
|-----------------------------|---|
| 'NO PARKING FIRE LANE' SIGN | ① |
| 'STOP' SIGN | ② |
| 'BARRIER FREE PARKING' SIGN | ③ |
| 'VAN ACCESSIBLE' SIGN | ④ |
- REFER TO DETAIL SHEET FOR SIGN DETAILS



SCALE: 1" = 30'



CAUTION!
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TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS - MICHIGAN - 48302
PH - 248.338.4561 FX - 248.338.0223
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL



CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bld Package No. 03

Troy School District Troy, Michigan

DRAWING TITLE
DIMENSION & PAVING PLAN - EAST

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN JH

CHECKED TD

APPROVED TD

PROJECT NO.

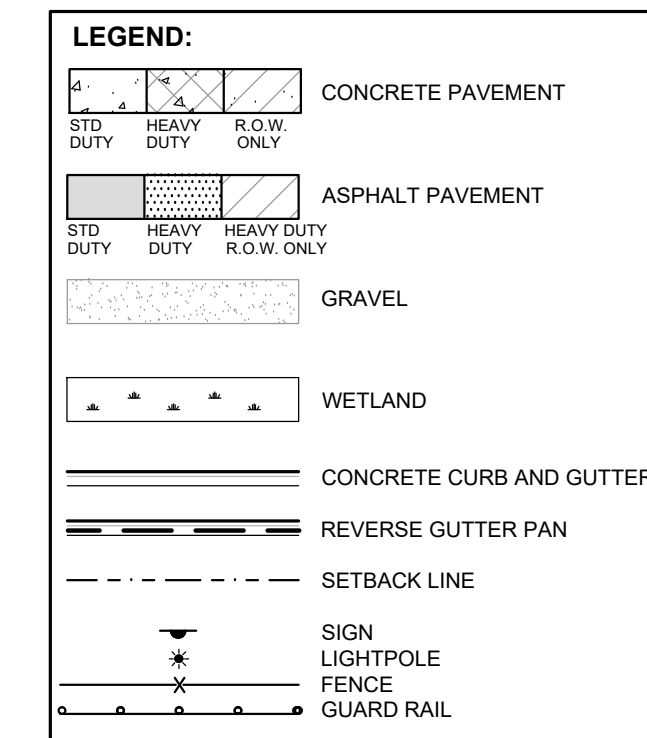
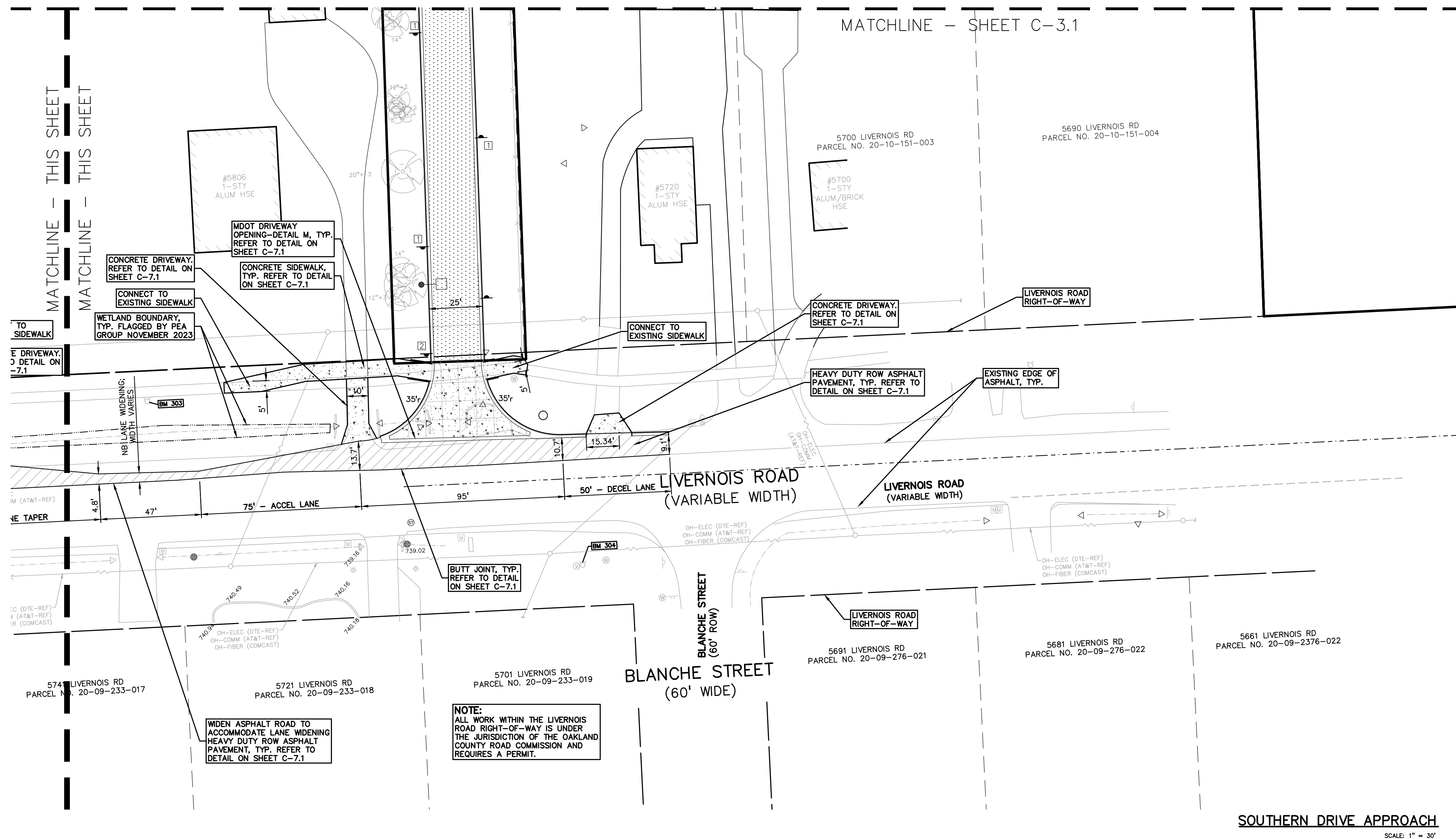
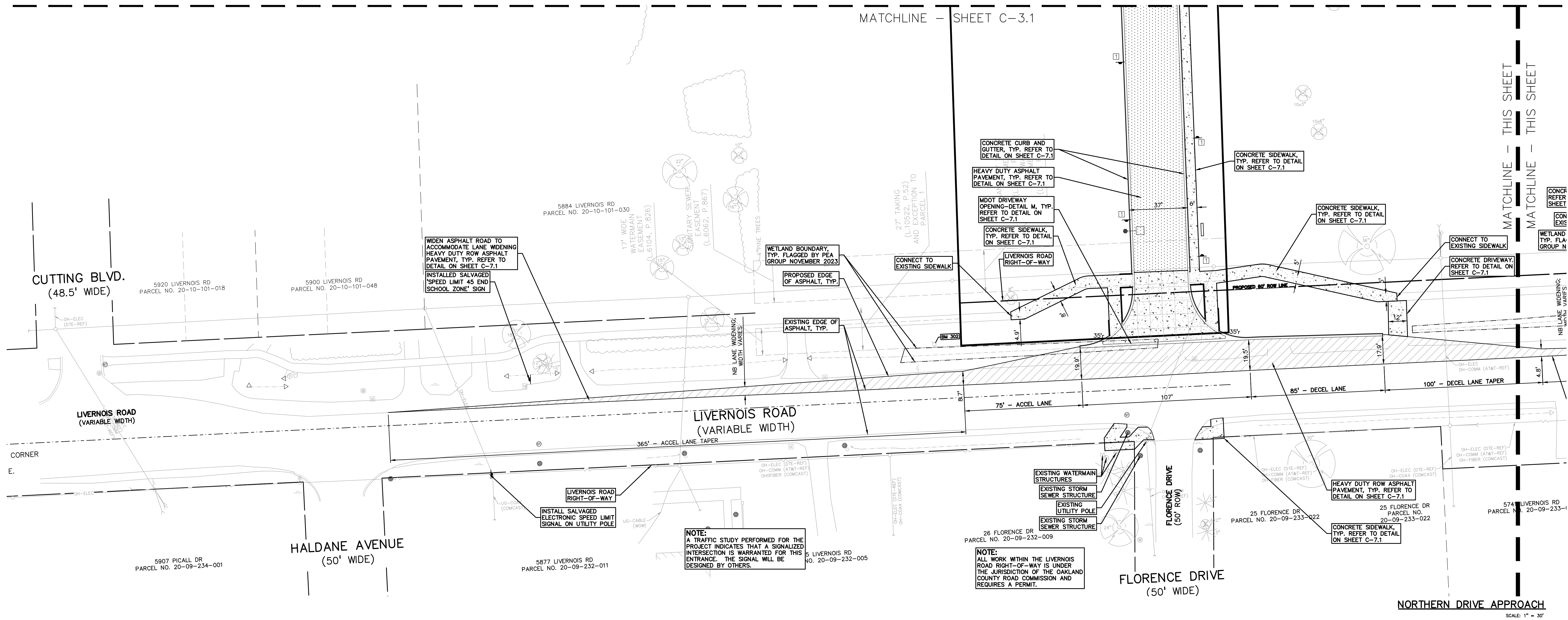
22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-3.2

Drawing File: S:\PROJECTS\2023\23-0301 TROY SCHOOL BLDG.3.CONSTRUCTION\NEW SMITH MIDDLE\23-03-0301.dwg
Date: 10-23-2023 10:49
Jan 14, 2025 2:28pm



- GENERAL NOTES:**
- THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
 - REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
 - REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS.

- SIGN LEGEND:**
- | | |
|-----------------------------|---|
| 'NO PARKING FIRE LANE' SIGN | 1 |
| 'STOP' SIGN | 2 |
| 'BARRIER FREE PARKING' SIGN | 3 |
| 'VAN ACCESSIBLE' SIGN | 4 |
- REFER TO DETAIL SHEET FOR SIGN DETAILS



0 15 30 60
SCALE: 1" = 30'



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TMP ARCHITECTURE INC
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REGISTRATION SEAL



CONSULTANT

PEA GROUP
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www.peagroup.com

PROJECT TITLE

New Smith Middle School Bld Package No. 03

Troy School District Troy, Michigan

**DRAWING TITLE
DIMENSION & PAVING PLAN - LIVERNOIS**

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN JH

CHECKED TD

APPROVED TD

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-3.3



REGISTRATION SEAL



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GROUP
t: 844.813.2949
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PROJECT TITLE
**New Smith Middle
School
Bld Package No. 03**

Troy School District
Troy, Michigan

DRAWING TITLE
**LIVERNOIS STRIPING
PLAN**

ISSUE DATES

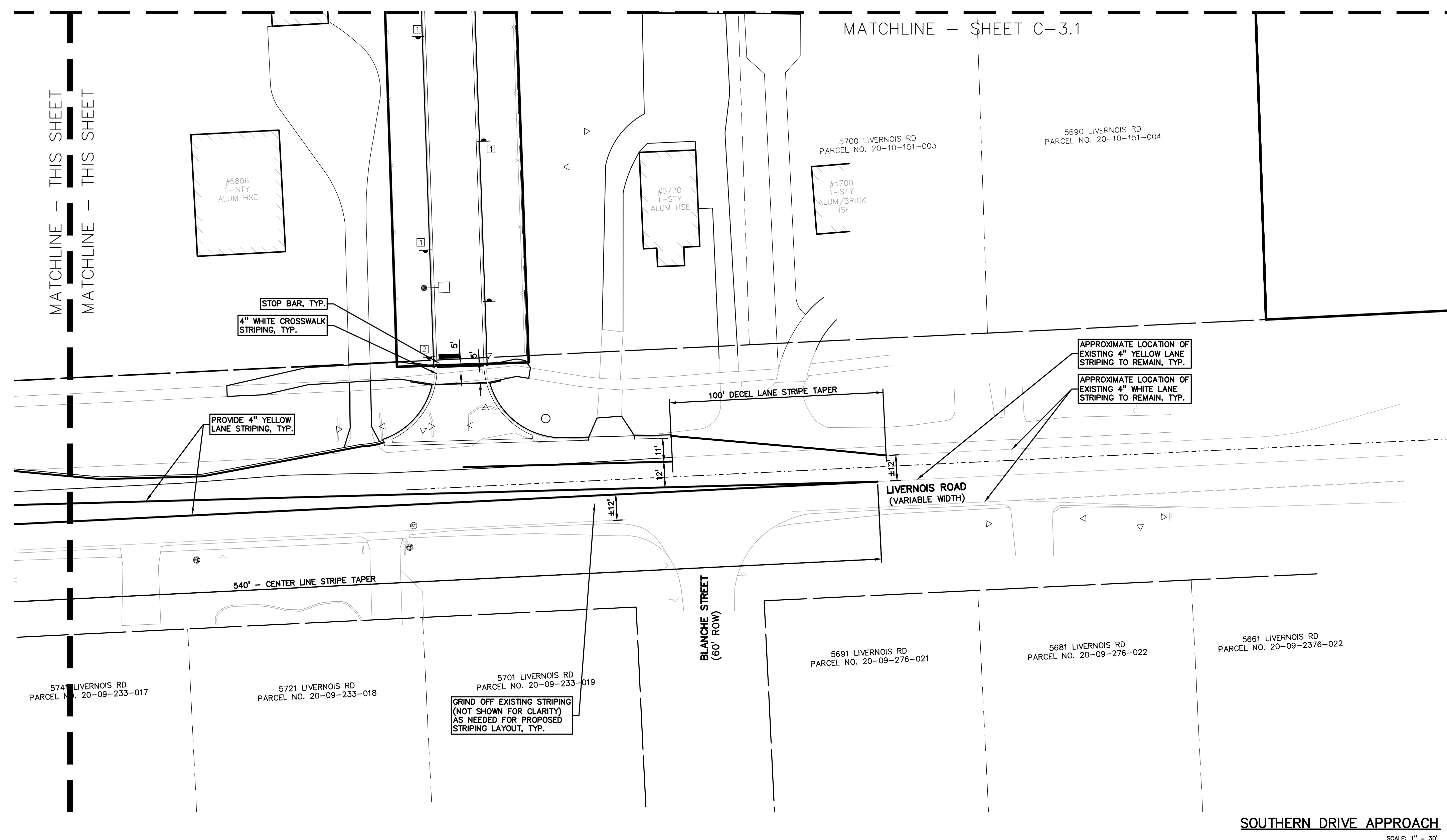
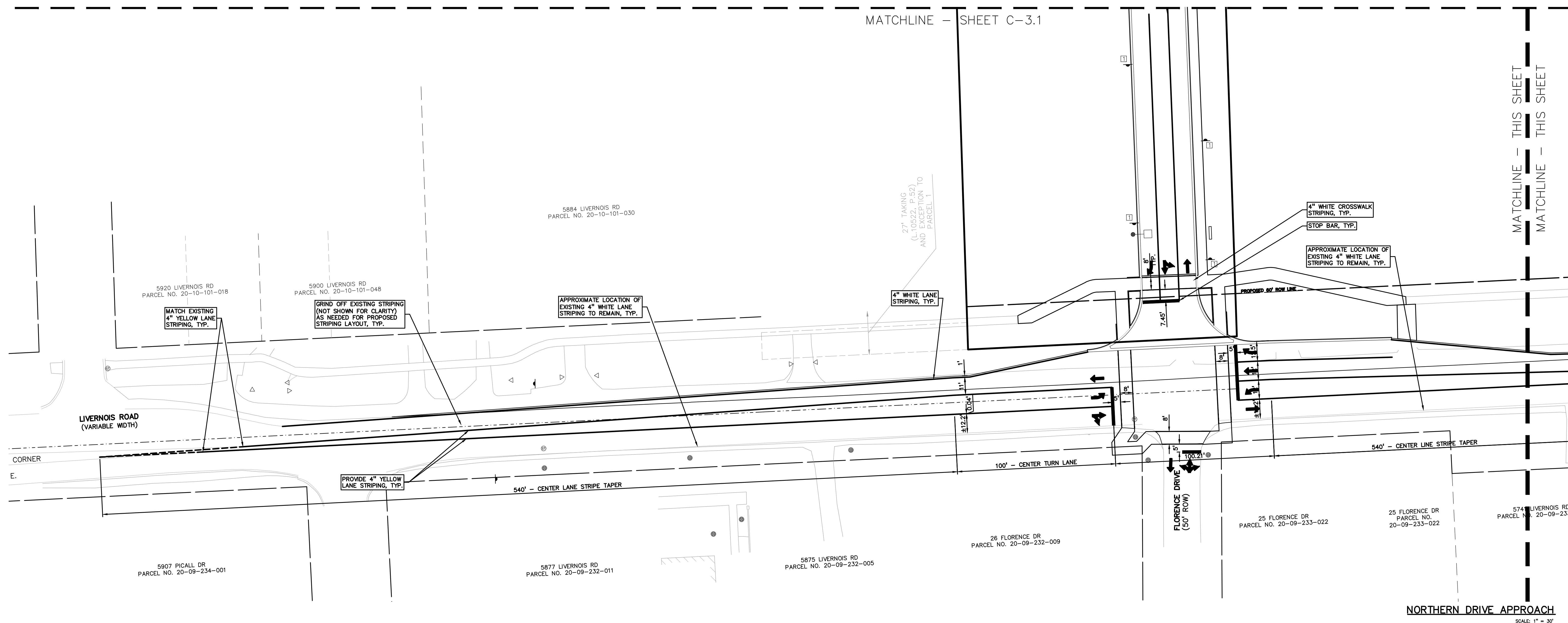
01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	ROC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RTI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:
DRAWN	<i>JW</i>
CHECKED	TD
APPROVED	TD

PROJECT NO.

22102

DRAWING NO.

C-3.4



LEGEND:

STD DUTY	HEAVY DUTY	R.O.W. ONLY	CONCRETE PAVEMENT
STD DUTY	HEAVY DUTY	R.O.W. ONLY	ASPHALT PAVEMENT
			GRAVEL
			WETLAND
			CONCRETE CURB AND GUTTER
			REVERSE GUTTER PAN
			SETBACK LINE
			SIGN
			LIGHTPOLE
			FENCE
			GUARD RAIL

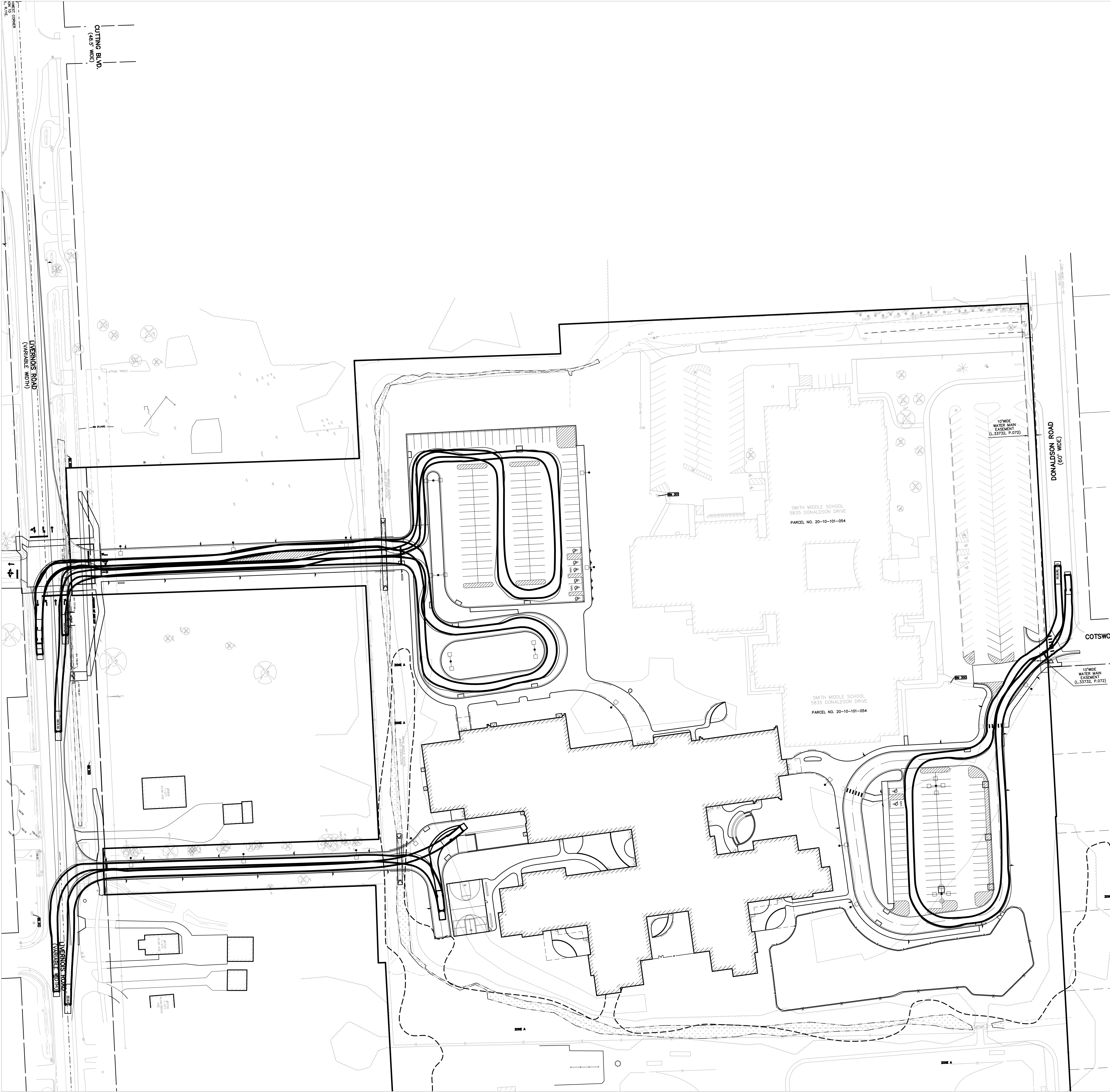
GENERAL NOTES:

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3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS



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Drawing File: S:\PROJECTS\2023\23-0301 TROY SCHOOLS 2022 BIDDING\23-0301 TROY SCHOOLS\NEW SMITH MIDDLE\23-0301 TURN-23-0301.dwg
Date: 10/14/2023 10:10:10 AM
User: jw



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REGISTRATION SEAL



CONSULTANT



PROJECT TITLE
**New Smith Middle School
Bld Package No. 03**

**Troy School District
Troy, Michigan**

DRAWING TITLE
**FIRE TRUCK TURNING
MOVEMENT PLAN**

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN J.W.

CHECKED TD

APPROVED TD

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-3.5



0 25 50 100
SCALE: 1" = 50'



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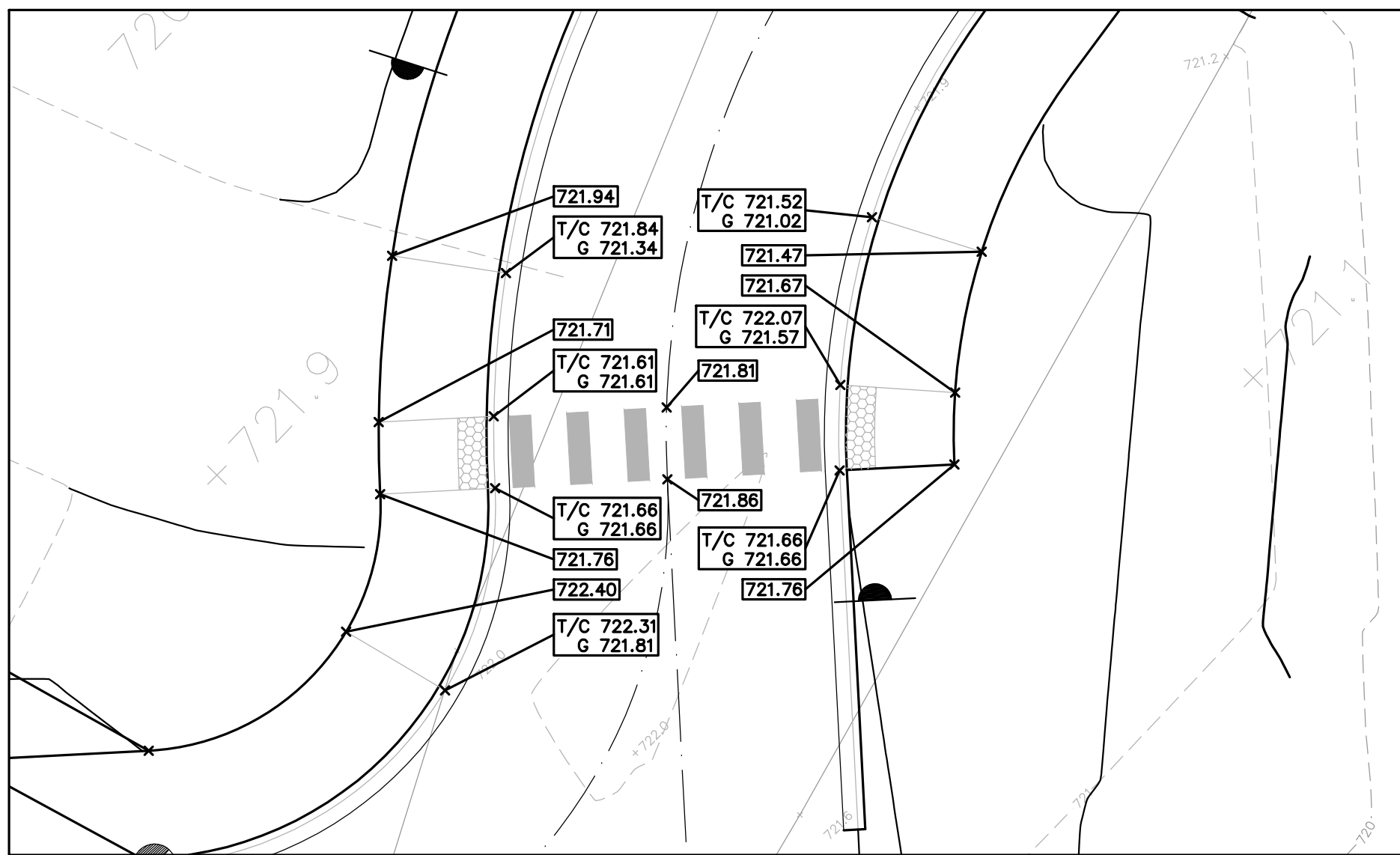
EARTHWORK NOTES:

1. A REPORT ON GEOTECHNICAL INVESTIGATION DATED DECEMBER 29, 2023, WAS PREPARED BY THE G2 CONSULTING GROUP.
2. BID PACKAGE NO. 03E WAS PREVIOUSLY RELEASED TO COVER THE GROUND IMPROVEMENT FOR THE SITE.

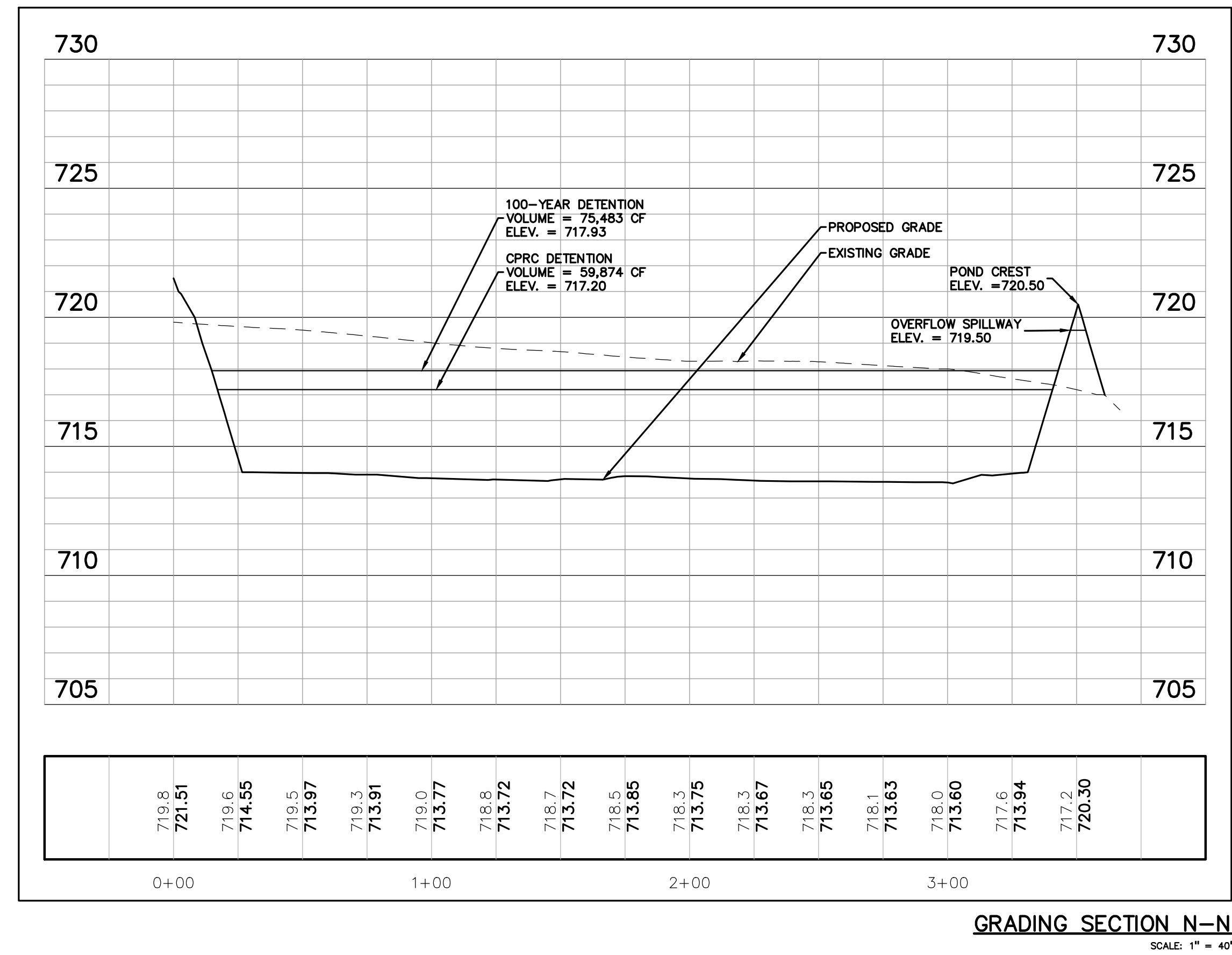


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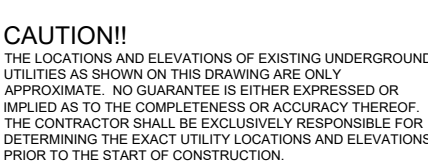


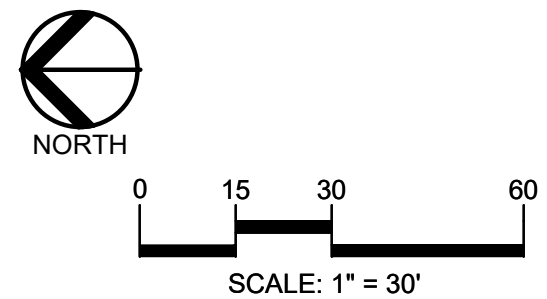
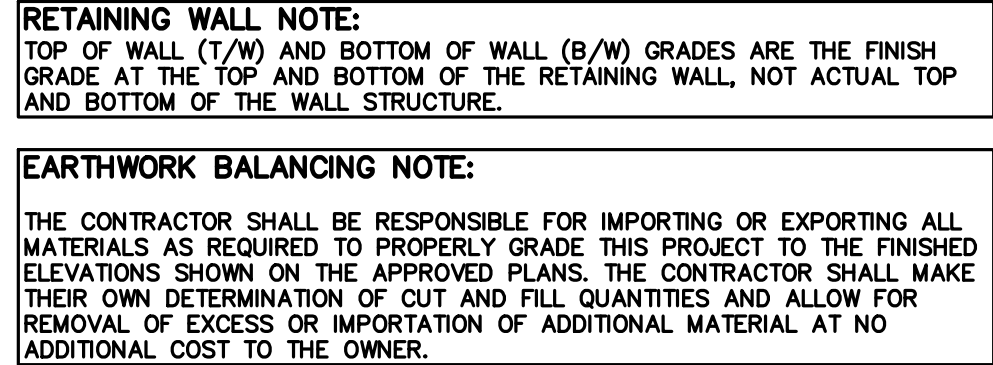
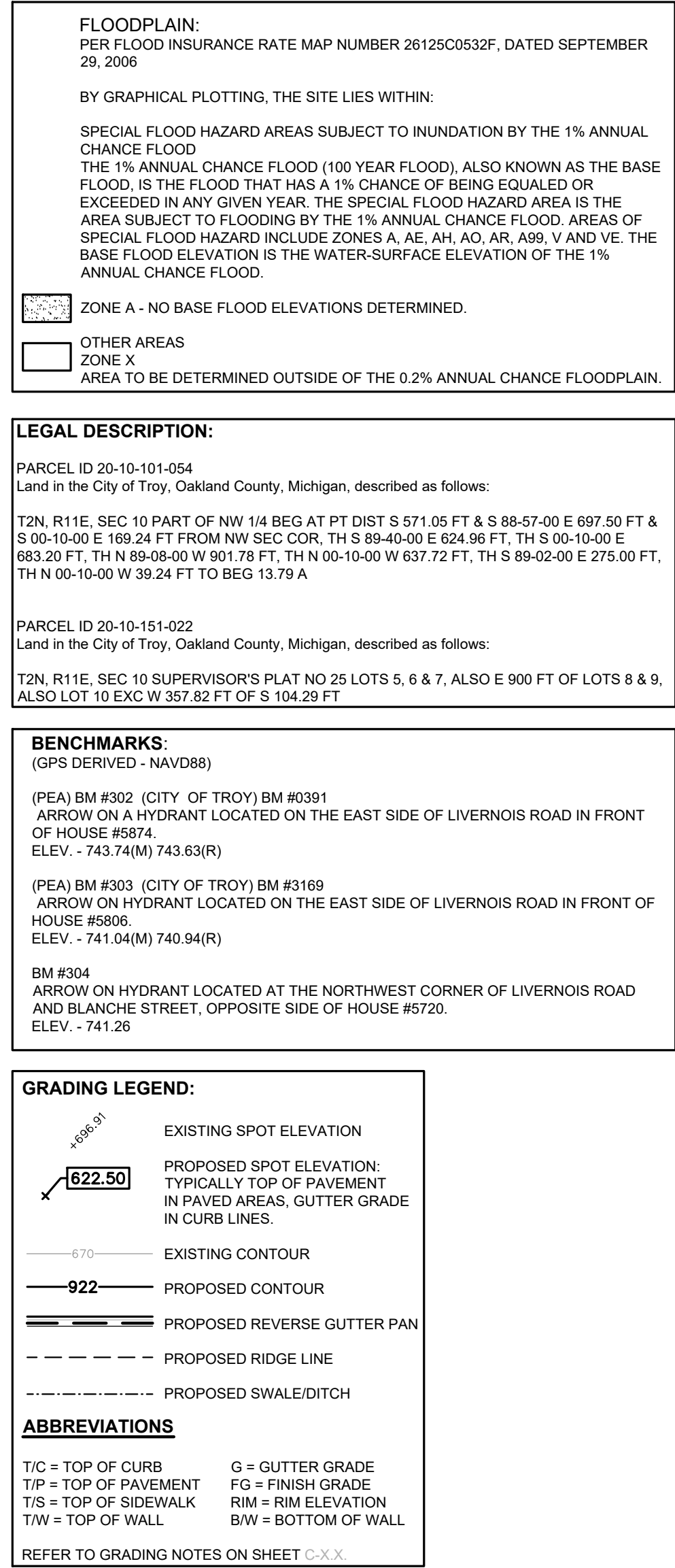
GRADING ENLARGEMENT 'B'



EARTHWORK NOTES:

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2. BID PACKAGE NO. 03E WAS PREVIOUSLY RELEASED TO COVER THE GROUND IMPROVEMENT FOR THE SITE.





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1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS • MICHIGAN • 48302
PH • 248.338.4561 FX • 248.338.0223
EM • INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL



CONSULTANT

PEA
GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
**New Smith Middle
School
Bld Package No. 03**

Troy School District
Troy, Michigan

DRAWING TITLE
**GRADING PLAN -
LIVERNOIS**

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RCOC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR

DRAWN

CHECKED

APPROVED

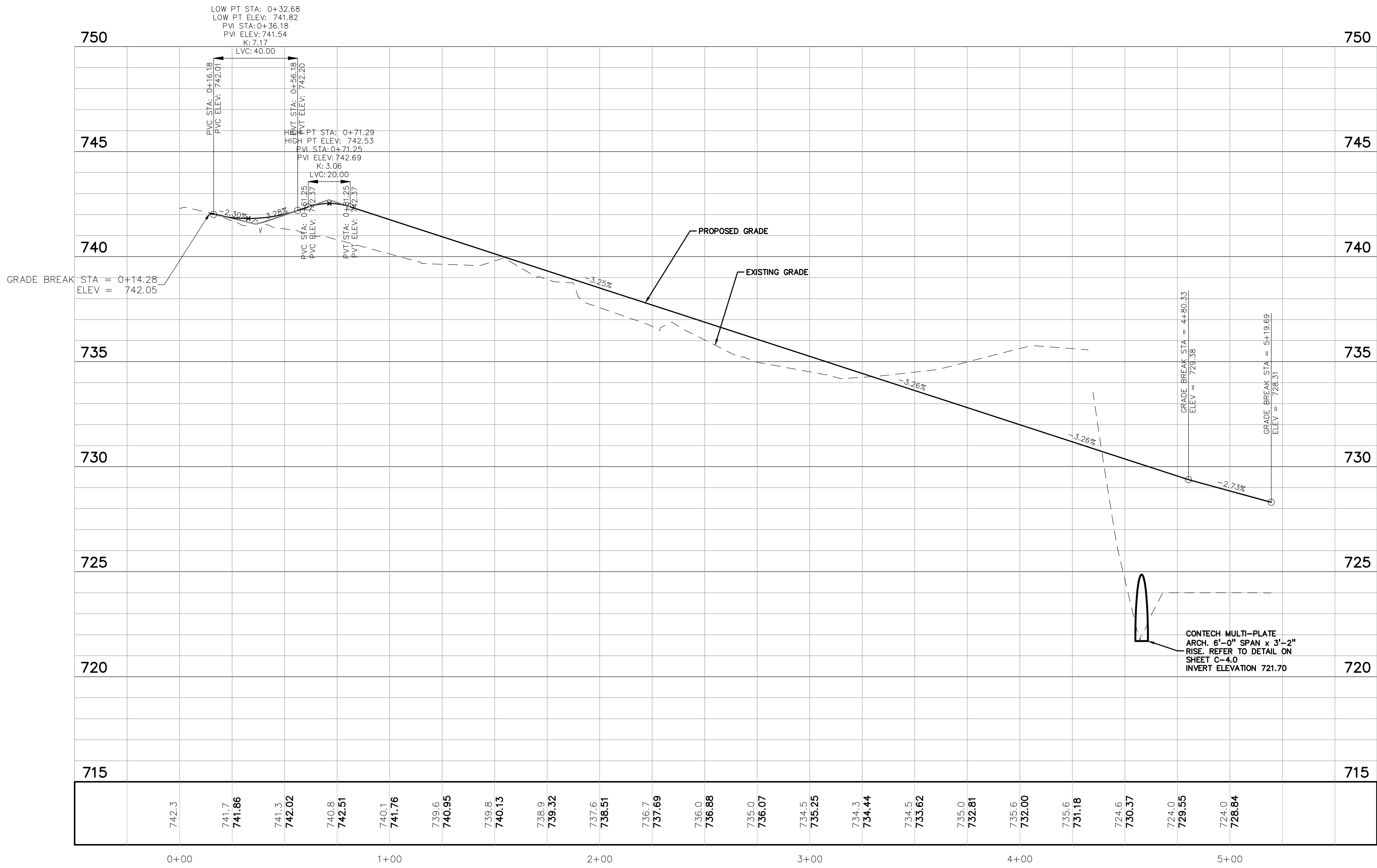
PROJECT NO.

22102

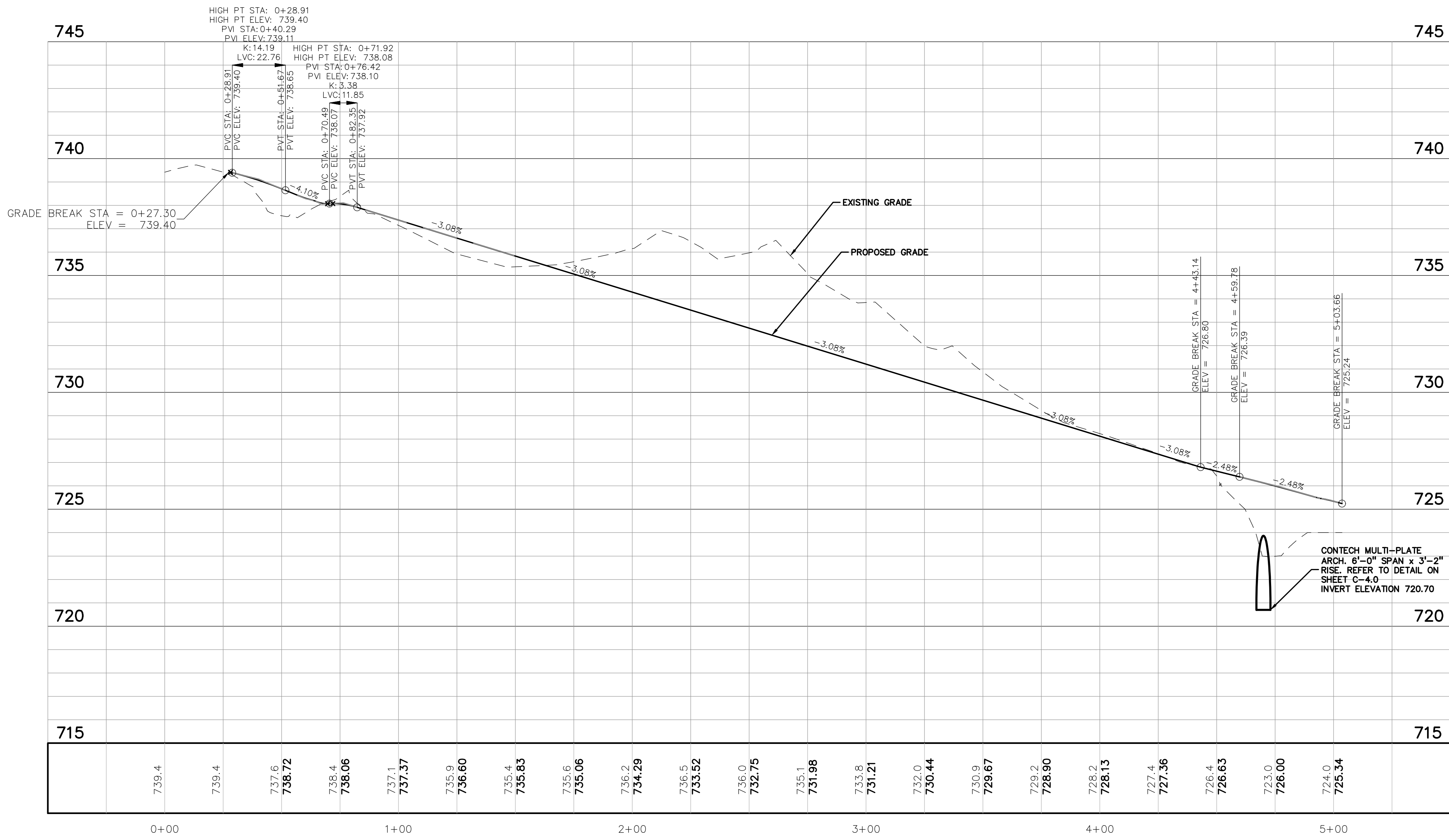
DRAWING NO

C-4.3

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Jan 14, 2025 2:35pm



NORTH ENTRY DRIVE PROFILE



SOUTH ENTRY DRIVE PROFILE

FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C05327, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:
PARCEL ID 20-10-101-034
Land in the City of Troy, Oakland County, Michigan, described as follows:
T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.06 FT & S 89-57-00 E 697.60 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 693.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A.

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:
T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 87.82 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NAVD83)
(PEA) BM #302 (CITY OF TROY) BM #0391
ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #5874.
ELEV. = 743.74(M) 743.63(R)
(PEA) BM #303 (CITY OF TROY) BM #3169
ARROW ON HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #5806.
ELEV. = 741.04(M) 740.94(R)
BM #304
ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF LIVERNOIS ROAD AND BLANCHE STREET, OPPOSITE SIDE OF HOUSE #5720.
ELEV. = 741.28

TMP ARCHITECTURE

TMP ARCHITECTURE INC

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REGISTRATION SEAL



CONSULTANT

PEA GROUP

t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bld Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE
ENTRY DRIVE PROFILES

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
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07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

PROJECT NO.
22102
CITY OF TROY PROJECT NO.: 24.910.3
DRAWING NO.
C-4.4

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WATER MAIN BASIS OF DESIGN:			
(Unit Factors Based on Oakland County Unit Assignment Factors)			
Middle School			
Square Footage	125,725 SF		
Unit Factor	0.12 per 1000 sf		
REU	15.1		
Population (P) (3.5 PEOPLE/EDU)	52.8 People		
TOTAL			
	REU	15.1	53 People
Average Flow (150 GPCPD)		7,950 G.P.D.	0.012 C.F.S.
		0.012 C.F.S.	0.008 M.G.D.
Design Max. Flow = (2"avg)		15900.00 G.P.D.	0.025 C.F.S.
		0.025 C.F.S.	0.016 M.G.D.

PROPOSED SANITARY SEWER BASIS OF DESIGN:			
(Unit Factors Based on Oakland County Unit Assignment Factors)			
Middle School			
Square Footage	125,725 SF		
Unit Factor	0.12 per 1000 sf		
REU	15.1		
Population (P) (3.5 PEOPLE/EDU)	52.8 People		
TOTAL			
	REU	15.1	53 People
Average Flow (100 GPCPD)		5,300 G.P.D.	0.008 C.F.S.
		0.008 C.F.S.	0.003 M.G.D.
P (1000s)		4.31	
Peaking Factor (PF)		PF = (18+sqrt(P))/(4+sqrt(P))	
Peak Flow (G.P.D.)		22,840 G.P.D.	
Peak Flow (C.F.S.)		0.035 C.F.S.	
8" Pipe Capacity Provided		0.857 C.F.S.	

FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C05327, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:
SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.
OTHER AREAS
ZONE X
AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:
PARCEL ID 20-10-101-054
Land in the City of Troy, Oakland County, Michigan, described as follows:
T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.06 FT & S 89.57-00 E 697.90 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 693.20 FT, TH N 89-08-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.75 A.

PARCEL ID 20-10-101-022
Land in the City of Troy, Oakland County, Michigan, described as follows:
T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 37.42 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NAVD83)
(PEA) BM #302 (CITY OF TROY) BM #0391
ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #5874.
ELEV. - 743.74(M) 743.63(R)
(PEA) BM #303 (CITY OF TROY) BM #3169
ARROW ON HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOIS ROAD IN FRONT OF HOUSE #5806.
ELEV. - 741.04(M) 740.94(R)
BM #304
ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF LIVERNOIS ROAD AND BLANCHE STREET, OPPOSITE SIDE OF HOUSE #5720.
ELEV. - 741.28

UTILITY LEGEND:

—OH—ELEC—W—O—< EX. OH. ELEC. POLE & GUY WIRE
—OH—CABLE TV— EX. OH. CABLE TV & PEDESTAL
—OH—COMM—EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
—OH—ELEC—EX. U.G. ELEC. MANHOLE, METER & HANDHOLE
—EX. GAS LINE
—EX. GAS VALVE & GAS LINE MARKER
—EX. TRANSFORMER & IRRIGATION VALVE
—EX. WATER MAIN
—EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
—EX. WATER VALVE BOX & SHUTOFF
—EX. SANITARY SEWER
—EX. SANITARY CLEANOUT & MANHOLE
—EX. COMBINED SEWER MANHOLE
—EX. STORM SEWER
—EX. CLEANOUT & MANHOLE
—EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
—EX. YARD DRAIN & ROOF DRAIN
—EX. UNIDENTIFIED STRUCTURE
—PROPOSED WATER MAIN
—PROPOSED HYDRANT AND GATE VALVE
—PROPOSED TAPPING SLEEVE, VALVE & WELL
—PROPOSED POST INDICATOR VALVE
—PROPOSED SANITARY SEWER
—PROPOSED SANITARY CLEANOUT & MANHOLE
—PROPOSED STORM SEWER
—PROPOSED STORM SEWER CLEANOUT & MANHOLE
—PROPOSED CATCH BASIN, INLET & YARD DRAIN

CITY OF TROY STORM SEWER FRAME AND COVER NOTES

MANHOLE
FRAME: EJ 1000
COVER: TYPE "C" PERFORMED WITH
"CITY OF TROY STORM" TEXT

CATCH BASIN - PAVEMENT (RESIDENTIAL)
FRAME: EJ 5080
COVER: SINUSOIDAL M2

CATCH BASIN - PAVEMENT (NON-RESIDENTIAL)
FRAME: EJ 5105
COVER: SINUSOIDAL M2

CATCH BASIN - NON-PAVEMENT
FRAME: EJ 1000
COVER: TYPE "M," "N" OR "O" 1" HEAVY DUTY

CATCH BASIN - LANDSCAPE AREA OR ROADSIDE DITCH
MAY REQUIRE:
• EJ 1400 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRATE
• EJ 1130 TYPE "N" OVAL GRATE OR TYPE 01 BEEHIVE GRATE
• EJ 2800 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRATE
• EJ 6508 OR EJ 6517

NOTE:
CONTRACTOR SHALL VERIFY ALL QUANTITIES. ANY DEVIATIONS TO THE PLAN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF PEA GROUP FOR VERIFICATION, PRIOR TO BIDDING.

PREMIUM TRENCH BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45' LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE MDOT CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

REFER TO UTILITY NOTES ON SHEET C-7.0.



0 25 50 100
SCALE: 1" = 50'



CAUTION!
THE LOCATION AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE CORRECTNESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITIES LOCATIONS AND DEPTHS PRIOR TO THE START OF CONSTRUCTION.



TMP ARCHITECTURE INC
1191 WEST SQUARE LAKE ROAD
BLOOMFIELD HILLS - MICHIGAN - 48302
PH - 248.338.4545 FX - 248.338.0233
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL



CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

PROJECT TITLE
New Smith Middle School Bld Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE
OVERALL UTILITY PLAN

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN JW

CHECKED TD

APPROVED TD

PROJECT NO.

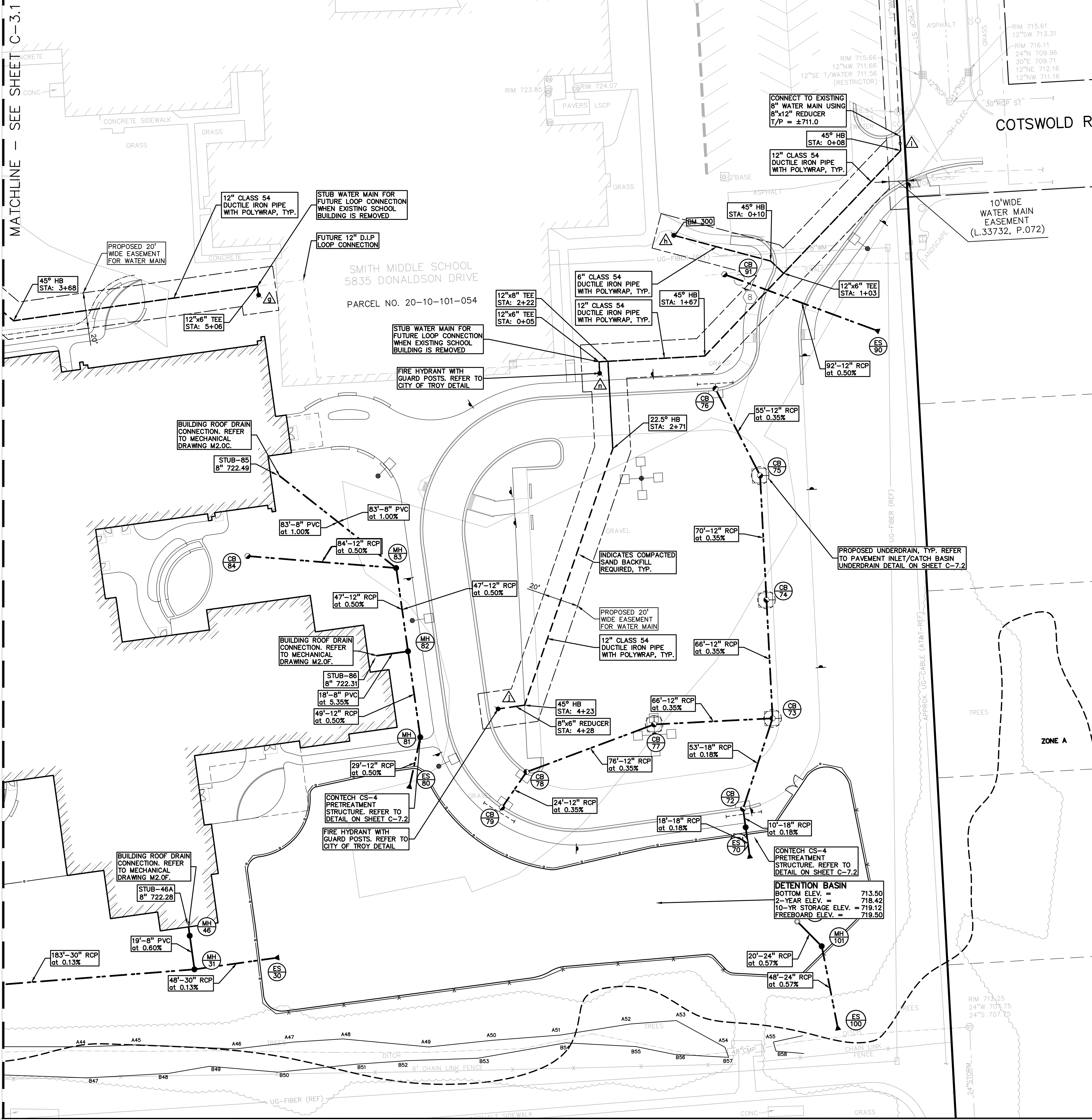
22102

CITY OF TROY PROJECT NO.: 24.910.3

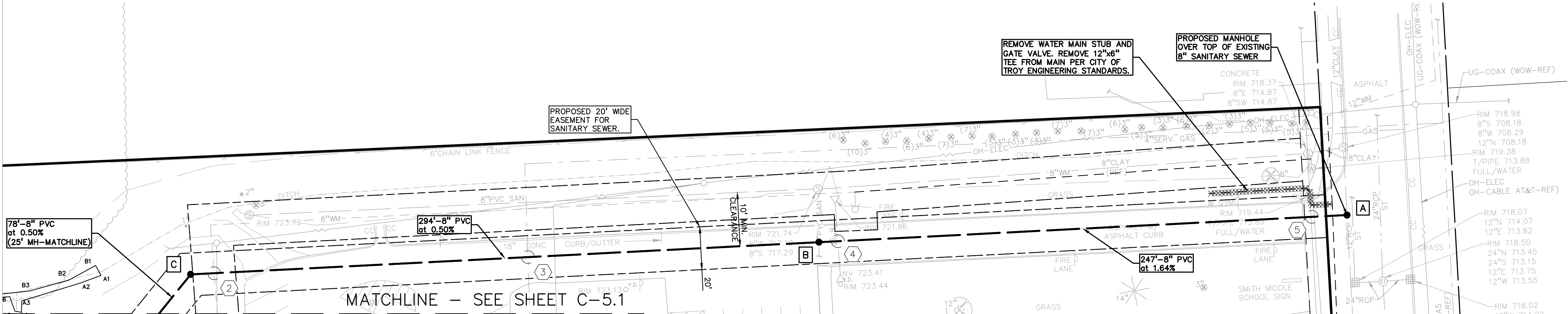
DRAWING NO.

C-5.0





EAST UTILITY ENLARGEMENT
SCALE: 1" = 30'



NORTH UTILITY ENLARGEMENT
SCALE: 1" = 30'

CITY OF TROY STORM SEWER FRAME AND COVER NOTES	
MANHOLE	FRAME: EJ 1000 COVER: TYPE "C" PERFORMED WITH "CITY OF TROY STORM" TEXT
CATCH BASIN - PAVEMENT (RESIDENTIAL)	FRAME: EJ 5080 COVER: SINUSOIDAL M2
CATCH BASIN - PAVEMENT (NON-RESIDENTIAL)	FRAME: EJ 5105 COVER: SINUSOIDAL M2
CATCH BASIN - NON-PAVEMENT	FRAME: EJ 1000 COVER: TYPE "M", "N" OR "O" 1" HEAVY DUTY
CATCH BASIN - LANDSCAPE AREA OR ROADSIDE DITCH	MAY REQUIRE: • EJ 1040 TYPE "N" OVAL GRATE OR TYPE G2 BEEHIVE GRATE • EJ 1130 TYPE "N" OVAL GRATE OR TYPE G1 BEEHIVE GRATE • EJ 2800 TYPE "N" OVAL GRATE OR TYPE G2 BEEHIVE GRATE • EJ 5050 OR E2617
NOTE: CONTRACTOR SHALL VERIFY ALL QUANTITIES. ANY DEVIATIONS TO THE PLAN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF PEI GROUP FOR VERIFICATION, PRIOR TO BIDDING.	
PREMIUM TRENCH BACKFILL NOTE: ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE MDOT CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).	
REFER TO UTILITY NOTES ON SHEET C-7.0.	

SANITARY STRUCTURES	
A	MH (4" DIA.) RM = 715.63 8" W 710.38 8" S 708.38 8" N 708.38
B	MH (4" DIA.) RM = 723.30 8" W 714.52 8" S 717.29 8" E 714.42
C	MH (4" DIA.) RM = 723.01 8" W 716.09 8" E 715.99
D	MH (4" DIA.) RM = 724.01 8" W 716.48 8" NE 716.48
E	MH (4" DIA.) RM = 724.00 8" W 718.40 8" N 718.30
F	MH (4" DIA.) RM = 725.36 8" S 719.06 8" N 718.92

HYDRANTS	
c	HYDRANT ASSEMBLY F.G. = 725.02
f	HYDRANT ASSEMBLY F.G. = 725.05
g	HYDRANT ASSEMBLY F.G. = 724.94
h	HYDRANT ASSEMBLY F.G. = 722.00
j	HYDRANT ASSEMBLY F.G. = 722.97
n	HYDRANT ASSEMBLY F.G. = 723.36

WATER MAIN STRUCTURES	
a	GV IN WELL RM = 738.07
b	GV IN WELL RM = 726.53
d	GV IN WELL RM = 725.00
e	GV IN BOX RM = 725.34
i	GV IN WELL RM = 717.11

END SECTIONS	
30	END SECTION 30' 717.02
70	END SECTION 18" 716.39
80	END SECTION 12" 718.20
90	END SECTION 12" 718.00
100	END SECTION 24" 712.52

UTILITY LEGEND:	
OH-ELEC-WOW	EX. OH. ELEC. POLE & GUY WIRE
OH-CATV-E3	EX. U.G. CABLE TV & PEDESTAL
UG-DWV-98-0	EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
UG-ELEC-60-0	EX. U.G. ELEC. MANHOLE, METER & HANDKYLE
UG-ELEC-60-0	EX. GAS LINE
UG-ELEC-60-0	EX. GAS VALVE & GAS LINE MARKER
UG-ELEC-60-0	EX. TRANSFORMER & IRRIGATION VALVE
UG-ELEC-60-0	EX. WATER MAIN
UG-ELEC-60-0	EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
UG-ELEC-60-0	EX. WATER VALVE BOX & SHUTOFF
UG-ELEC-60-0	EX. SANITARY CLEANOUT & MANHOLE
UG-ELEC-60-0	EX. COMBINED SEWER MANHOLE
UG-ELEC-60-0	EX. STORM SEWER
UG-ELEC-60-0	EX. CLEANOUT & MANHOLE
UG-ELEC-60-0	EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
UG-ELEC-60-0	EX. YARD DRAIN & ROOF DRAIN
UG-ELEC-60-0	EX. UNIDENTIFIED STRUCTURE
UG-ELEC-60-0	PROPOSED WATER MAIN
UG-ELEC-60-0	PROPOSED HYDRANT AND GATE VALVE
UG-ELEC-60-0	PROPOSED TAPPING SLEEVE, VALVE & WELL
UG-ELEC-60-0	PROPOSED POST INDICATOR VALVE
UG-ELEC-60-0	PROPOSED SANITARY SEWER
UG-ELEC-60-0	PROPOSED SANITARY CLEANOUT & MANHOLE
UG-ELEC-60-0	PROPOSED STORM SEWER
UG-ELEC-60-0	PROPOSED STORM SEWER CLEANOUT & MANHOLE
UG-ELEC-60-0	PROPOSED CATCH BASIN, INLET & YARD DRAIN

STORM STRUCTURES	
MH 31	(5' DIA./0' SUMP) RM = 722.11 30" W 717.09 8" N 718.55 30" E 717.09
MH 32	(5' DIA./0' SUMP) RM = 722.77 30" W 717.32 8" N 718.79 30" E 717.32
MH 33	(5' DIA./0' SUMP) RM = 722.95 30" W 717.35 30" E 717.35
MH 34	(5' DIA./0' SUMP) RM = 723.80 30" W 717.59 8" NE 719.99 30" S 717.59
CB 35	(5' DIA./2' SUMP) RM = 725.02 12" NE 718.84 12" SE 717.62
CB 36	(5' DIA./2' SUMP) RM = 724.36 30" NW 717.72 30" S 717.72
CB 37	(5' DIA./2' SUMP) RM = 724.45 30" N 717.77 12" E 718.97 30" SE 717.77
MH 38	(5' DIA./0' SUMP) RM = 724.28 12" NE 718.97 30" S 717.87
CB 39	(5' DIA./2' SUMP) RM = 724.47 18" NW 718.88 12" E 719.28 24" S 718.48
CB 40	(5' DIA./2' SUMP) RM = 726.83 18" NW 718.95 18" SE 718.95
CB 41	(4' DIA./2' SUMP) RM = 728.91 42" N 733.59 42" SE 733.59
CB 42	(4' DIA./2' SUMP) RM = 728.09 18" N 719.07 18" SE 718.07

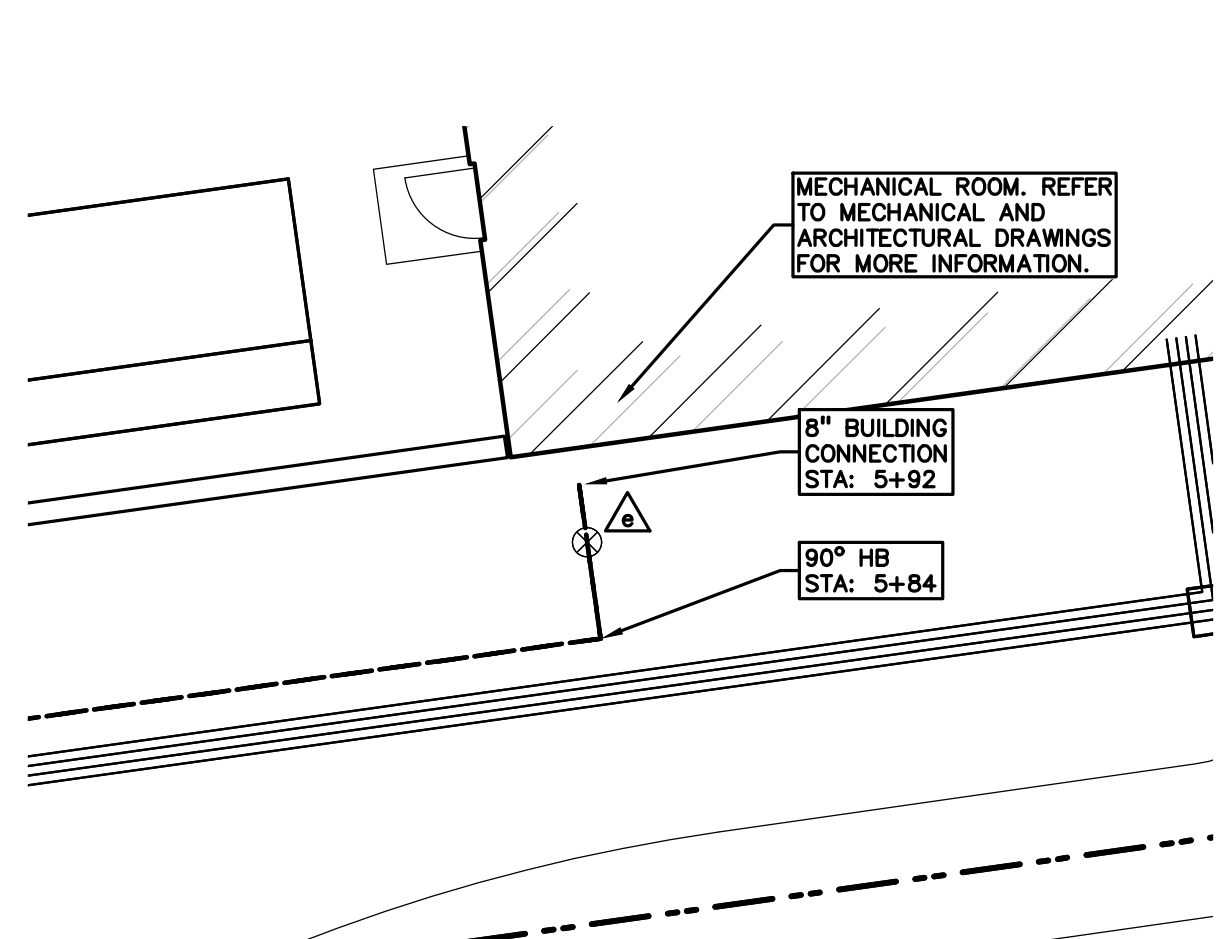
STORM STRUCTURES	
CB 43	(4' DIA./2' SUMP) RM = 729.11 18" N 719.13 18" S 719.13
CB 44	(4' DIA./2' SUMP) RM = 726.57 12" E 718.73 12" S 718.33
CB 45	(4' DIA./2' SUMP) RM = 726.57 12" W 720.25
MH 46	(4' DIA./0' SUMP) RM = 725.25 8" N 722.25 8" S 718.84
MH 47	(4' DIA./0' SUMP) RM = 724.75 8" N 722.42 8" S 718.84
CB 48	(4' DIA./2' SUMP) RM = 725.02 12" E 719.19 12" SW 718.19
CB 50	(4' DIA./2' SUMP) RM = 724.84 12" W 719.60
CB 51	(4' DIA./2' SUMP) RM = 724.45 12" W 719.25
CB 54	(5' DIA./2' SUMP) RM = 724.47 12" S 719.33 12" SW 717.43 12" E 717.43
CB 55	(4' DIA./2' SUMP) RM = 724.02 12" E 719.40 12" N 718.40
CB 58	(4' DIA./2' SUMP) RM = 723.25 12" SW 719.66
CB 59	(4' DIA./2' SUMP) RM = 726.50 12" E 719.36 12" S 719.36
CB 60	(4' DIA./2' SUMP) RM = 726.16 12" S 719.69

STORM STRUCTURES	
MH 71	(4' DIA./0' SUMP) RM = 721.21 30" N 716.42 18" S 716.42
CB 72	(4' DIA./2' SUMP) RM = 723.65 18" N 716.44 18" S 716.44
CB 73	(4' DIA./2' SUMP) RM = 720.28 12" N 718.93 12" W 718.93 12" S 718.53
CB 74	(4' DIA./2' SUMP) RM = 721.65 12" N 717.16 12" S 717.16
CB 75	(4' DIA./2' SUMP) RM = 725.02 12" NW 717.41 12" S 717.41
CB 76	(4' DIA./2' SUMP) RM = 722.33 12" SE 717.60
CB 77	(4' DIA./2' SUMP) RM = 721.01 12" W 717.16 12" E 717.16
CB 78	(4' DIA./2' SUMP) RM = 722.15 12" SW 717.43 12" E 717.43
CB 79	(4' DIA./2' SUMP) RM = 722.33 12" NE 717.52

STORM STRUCTURES	
MH 81	(4' DIA./0' SUMP) RM = 723.73 12" N 718.34 12" S 718.34
MH 82	(4' DIA./0' SUMP) RM = 724.75 8" N 721.36 8" W 718.59 8" S 718.59
MH 83	(4' DIA./0' SUMP) RM = 724.75 12" N 718.82 8" NW 721.66 12" S 718.82
CB 84	(4' DIA./2' SUMP) RM = 724.63 12" E 719.24

STORM STRUCTURES	
CB 91	(4' DIA./2' SUMP) RM = 720.30 12" E 718.46

CROSSING		CROSSING PIPE 1		CROSSING PIPE 2		CLEARANCE		NOTES	
1	8"	SAN	T/P=	12"	ST	B/P=	721.78	1.59	
2	8"	SAN	B/P=	716.55	8"	WM	T/P=	715.05	1.50
3	8"	SAN	T/P=	716.60	4"	GAS	B/P=	718.64	2.04
4	8"	SAN	T/P=	715.16	6"	ST	B/P=	722.53	7.38
5	8"	SAN	T/P=	711.38	12"	WM	B/P=	712.96	1.58
6	42"	ST	B/P=	732.62	12"	WM	T/P=	731.12	1.50
7	30"	ST	B/P=	717.45	8"	WM	T/P=	715.95	1.50
8	12"	ST	B/P=	718.25	12"	WM	T/P=	715.19	3.06



WATER MAIN ENLARGEMENT
SCALE: 1" = 10'

TMP ARCHITECTURE INC
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BLOOMFIELD HILLS - MICHIGAN - 48302
PH - 248.338.4561 FX - 248.338.0233
EM - INFO@TMP-ARCHITECTURE.COM

REGISTRATION SEAL

CONSULTANT

PEA GROUP
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www.peagroup.com

PROJECT TITLE

New Smith Middle School Bld Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE

UTILITY PLAN - EAST

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE: ISSUED FOR:

DRAWN: JW

CHECKED: TD

APPROVED: TD

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

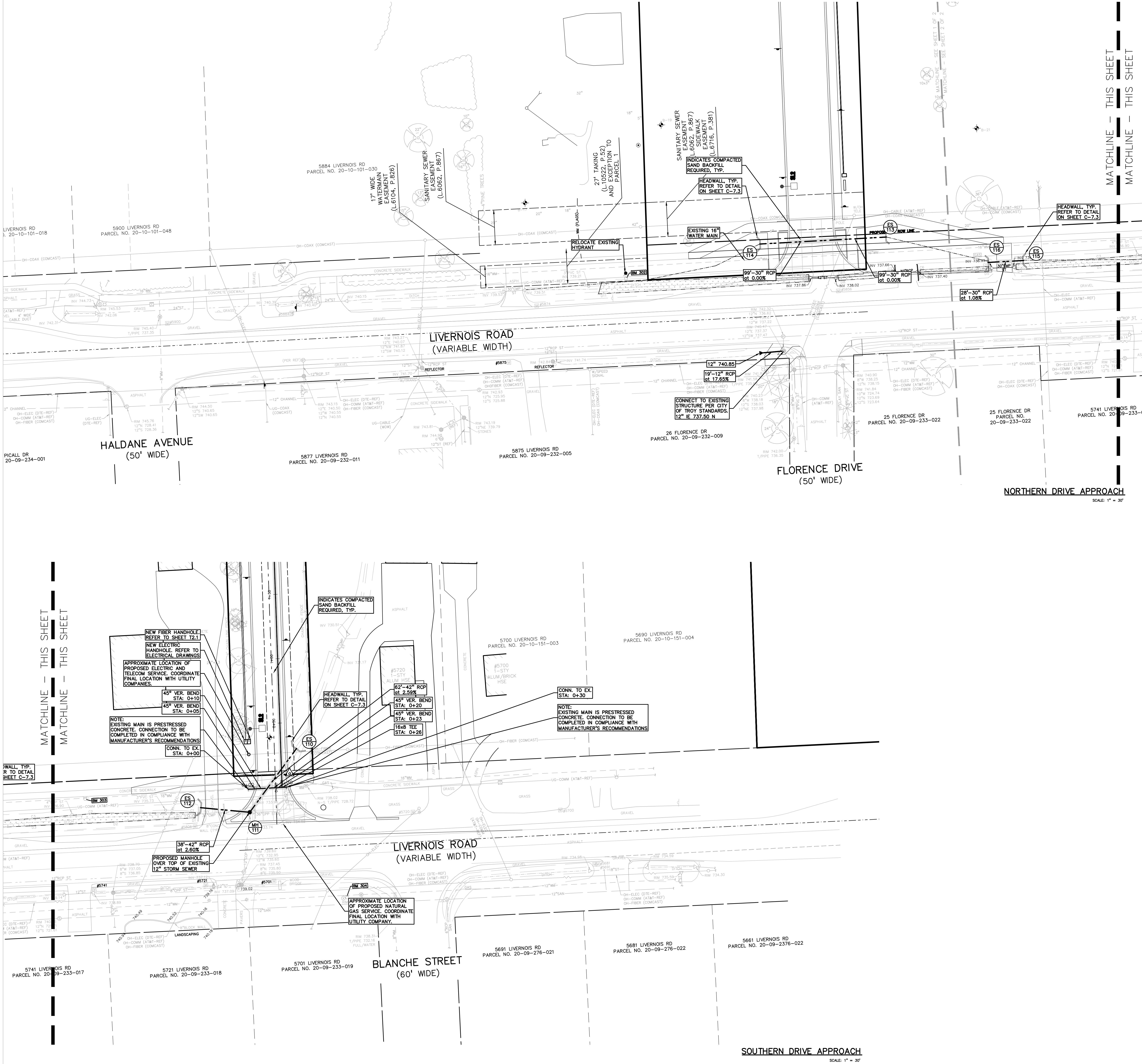
DRAWING NO.

C-5.2



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Drawing File: S:\PROJECTS\220102\220102-001 TROY SCHOOL DISTRICT NEW SMITH MIDDLE\CONSTRUCTION\NEW SMITH MIDDLE\220102-001 UTI-14-23-001.dwg
Date: 14, 2025 3:50pm



FLOODPLAIN:
PER FLOOD INSURANCE RATE MAP NUMBER 26125C05327, DATED SEPTEMBER 29, 2006

BY GRAPHICAL PLOTTING, THE SITE LIES WITHIN:

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE A - NO BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS

ZONE X

AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

LEGAL DESCRIPTION:

PARCEL ID 20-10-101-034
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 PART OF NW 1/4 BEG AT PT DIST S 571.06 FT & S 89.57-00 E 697.50 FT & S 00-10-00 E 169.24 FT FROM NW SEC COR, TH S 89-40-00 E 624.96 FT, TH S 00-10-00 E 693.20 FT, TH N 89-00-00 W 901.78 FT, TH N 00-10-00 W 637.72 FT, TH S 89-02-00 E 275.00 FT, TH N 00-10-00 W 39.24 FT TO BEG 13.79 A.

PARCEL ID 20-10-151-022
Land in the City of Troy, Oakland County, Michigan, described as follows:

T2N, R11E, SEC 10 SUPERVISOR'S PLAT NO 25 LOTS 5, 6 & 7, ALSO E 900 FT OF LOTS 8 & 9, ALSO LOT 10 EXC W 87.82 FT OF S 104.29 FT

BENCHMARKS:
(GPS DERIVED - NAVD83)

(PEA) BM #302 (CITY OF TROY) BM #3021
ARROW ON A HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOS ROAD IN FRONT OF HOUSE #5874.
ELEV. - 743.74(M) 743.63(R)

(PEA) BM #303 (CITY OF TROY) BM #3169
ARROW ON HYDRANT LOCATED ON THE EAST SIDE OF LIVERNOS ROAD IN FRONT OF HOUSE #5806.
ELEV. - 741.94(M) 740.94(R)

BM #304
ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF LIVERNOS ROAD AND BLANCHE STREET, OPPOSITE SIDE OF HOUSE #5720.
ELEV. - 741.28

- UTILITY LEGEND:**
- OH-ELEC-W-O- EX. OH. ELEC. POLE & GUY WIRE
 - OH-TV-W-O- EX. OH. CABLE TV & PRESTAL
 - OH-COMM-W-O- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
 - OH-ELEC-E-O- EX. U.G. ELEC. MANHOLE, METER & HANDHOLE
 - EX. GAS LINE
 - EX. GAS VALVE & GAS LINE MARKER
 - EX. TRANSFORMER & IRRIGATION VALVE
 - EX. WATER MAIN
 - EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
 - EX. WATER VALVE BOX & SHUTOFF
 - EX. SANITARY SEWER
 - EX. SANITARY CLEANOUT & MANHOLE
 - EX. COMBINED SEWER MANHOLE
 - EX. STORM SEWER
 - EX. CLEANOUT & MANHOLE
 - EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
 - EX. YARD DRAIN & ROOF DRAIN
 - EX. UNIDENTIFIED STRUCTURE
 - PROPOSED WATER MAIN
 - PROPOSED HYDRANT AND GATE VALVE
 - PROPOSED TAPPING SLEEVE, VALVE & WELL
 - PROPOSED POST INDICATOR VALVE
 - PROPOSED SANITARY SEWER
 - PROPOSED SANITARY CLEANOUT & MANHOLE
 - PROPOSED STORM SEWER
 - PROPOSED STORM SEWER CLEANOUT & MANHOLE
 - PROPOSED CATCH BASIN, INLET & YARD DRAIN

CITY OF TROY STORM SEWER FRAME AND COVER NOTES

MANHOLE
FRAME: EJ 1000
COVER: TYPE "C" PERFORMED WITH "CITY OF TROY STORM" TEXT

CATCH BASIN - PAVEMENT (RESIDENTIAL)
FRAME: EJ 5080
COVER: SINUSOIDAL M2

CATCH BASIN - PAVEMENT (NON-RESIDENTIAL)
FRAME: EJ 5105
COVER: SINUSOIDAL M2

CATCH BASIN - NON-PAVEMENT
FRAME: EJ 1000
COVER: TYPE "M," "N" OR "O1" HEAVY DUTY

CATCH BASIN - LANDSCAPE AREA OR ROADSIDE DITCH
MAY REQUIRE:
• EJ 1400 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRATE
• EJ 1130 TYPE "N" OVAL GRATE OR TYPE 01 BEEHIVE GRATE
• EJ 2800 TYPE "N" OVAL GRATE OR TYPE 02 BEEHIVE GRATE
• EJ 6508 OR EJ 6517

NOTE:
CONTRACTOR SHALL VERIFY ALL QUANTITIES. ANY DEVIATIONS TO THE PLAN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF PEA GROUP FOR VERIFICATION, PRIOR TO BIDDING.

PREMIUM TRENCH BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE MDOT CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

REFER TO UTILITY NOTES ON SHEET C-7.0.



0 25 50 100
SCALE: 1" = 50'



CAUTION!
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REGISTRATION SEAL



CONSULTANT

PEA GROUP
t: 847.813.2949
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PROJECT TITLE
New Smith Middle School Bld Package No. 03

Troy School District Troy, Michigan

DRAWING TITLE
UTILITY PLAN - LIVERNOS

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE **ISSUED FOR:**

DRAWN JW

CHECKED TD

APPROVED TD

PROJECT NO.

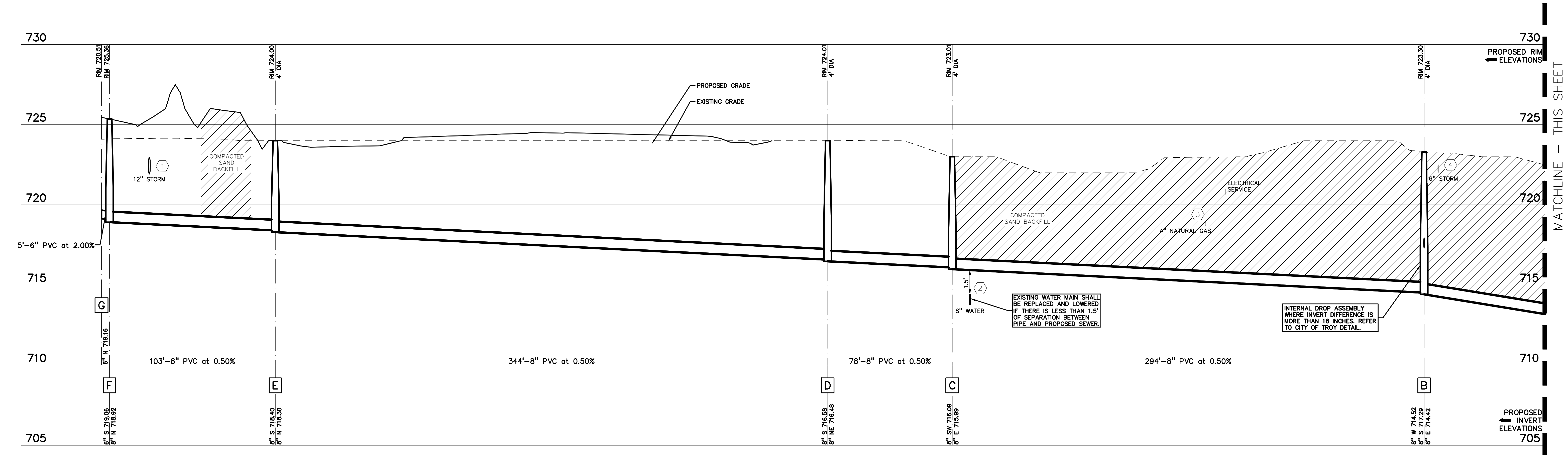
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CITY OF TROY PROJECT NO.: 24.910.3

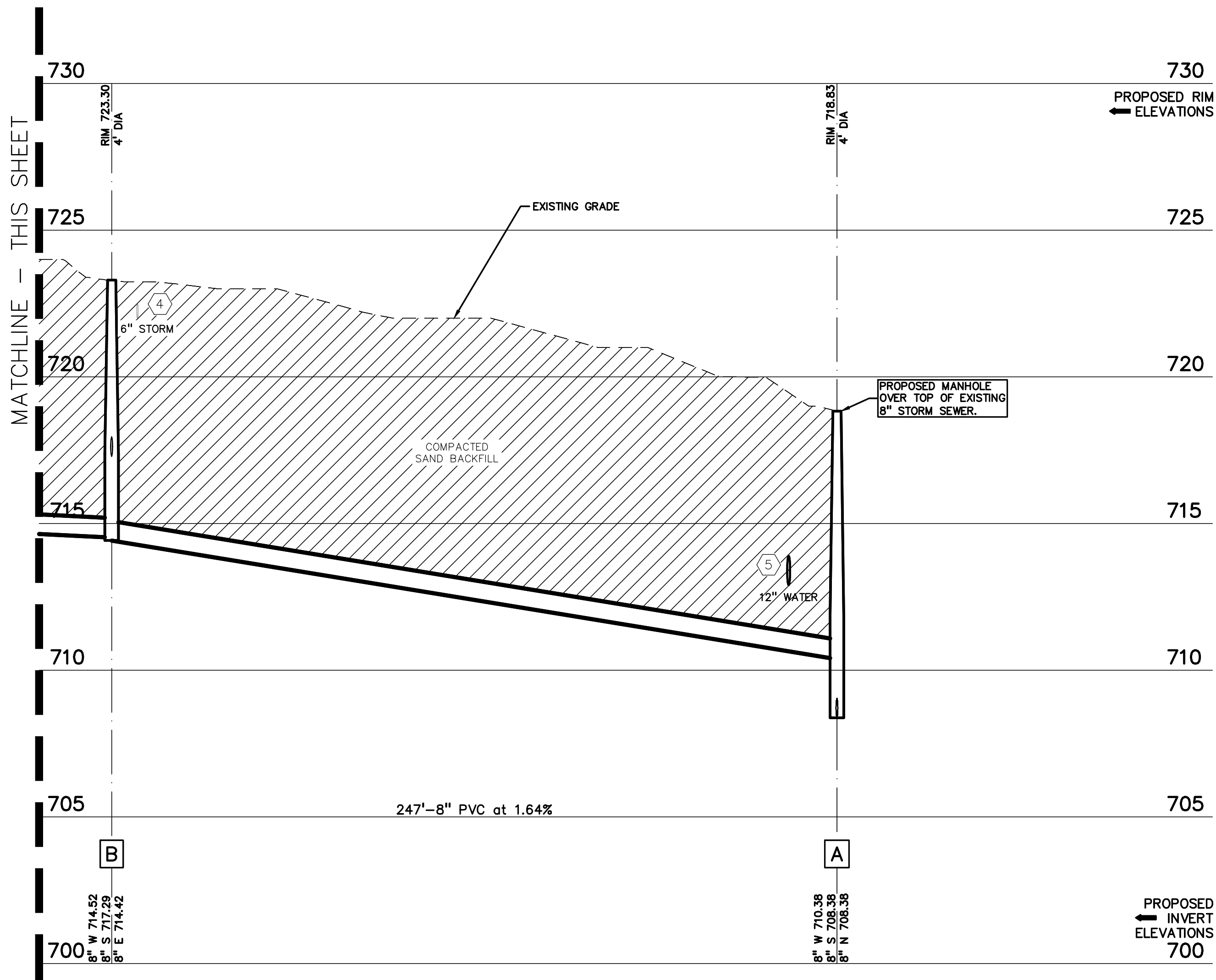
DRAWING NO.

C-5.3

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Jan 14, 2025 11:13am



SANITARY G-A PROFILE
HORIZ: 1" = 30'
VERT: 1" = 3'



SANITARY G-A PROFILE

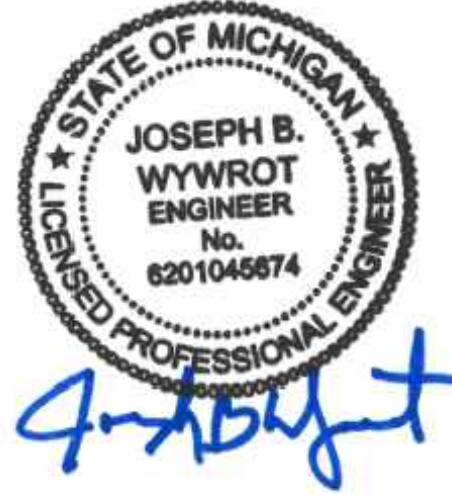


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PROJECT TITLE

New Smith Middle School
Bid Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE

SANITARY SEWER PROFILES

ISSUE DATES

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CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-6.0



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REGISTRATION SEAL



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PROJECT TITLE
**New Smith Middle School
Bid Package No. 03**

**Troy School District
Troy, Michigan**

DRAWING TITLE

**STORM SEWER
PROFILES**

ISSUE DATES

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12-20-2024	BULLETIN 6
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06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

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PROJECT NO.

22102

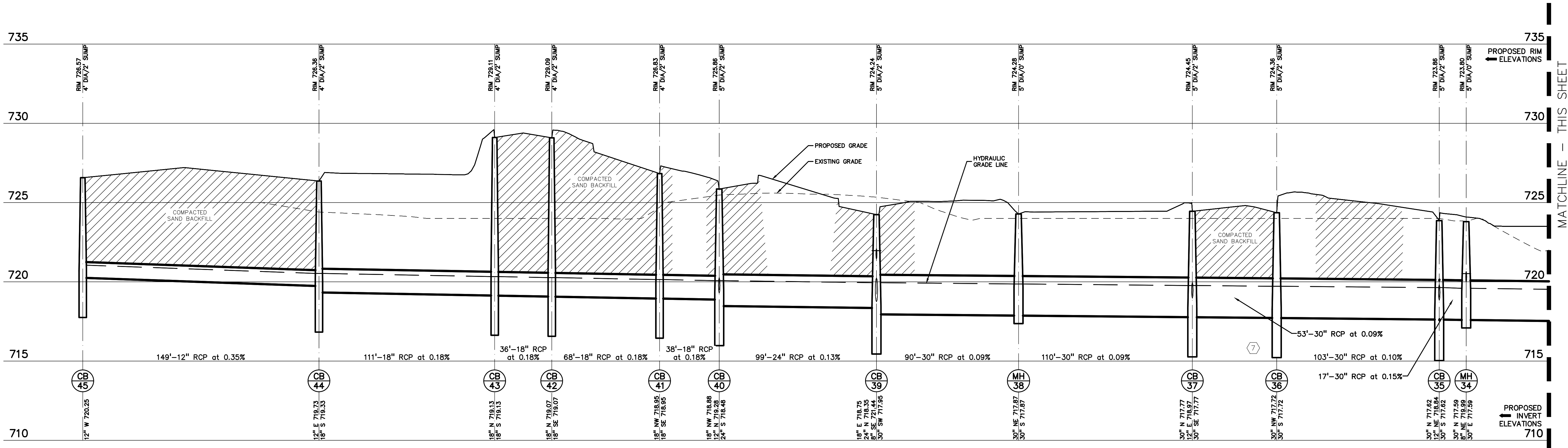
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DRAWING NO.

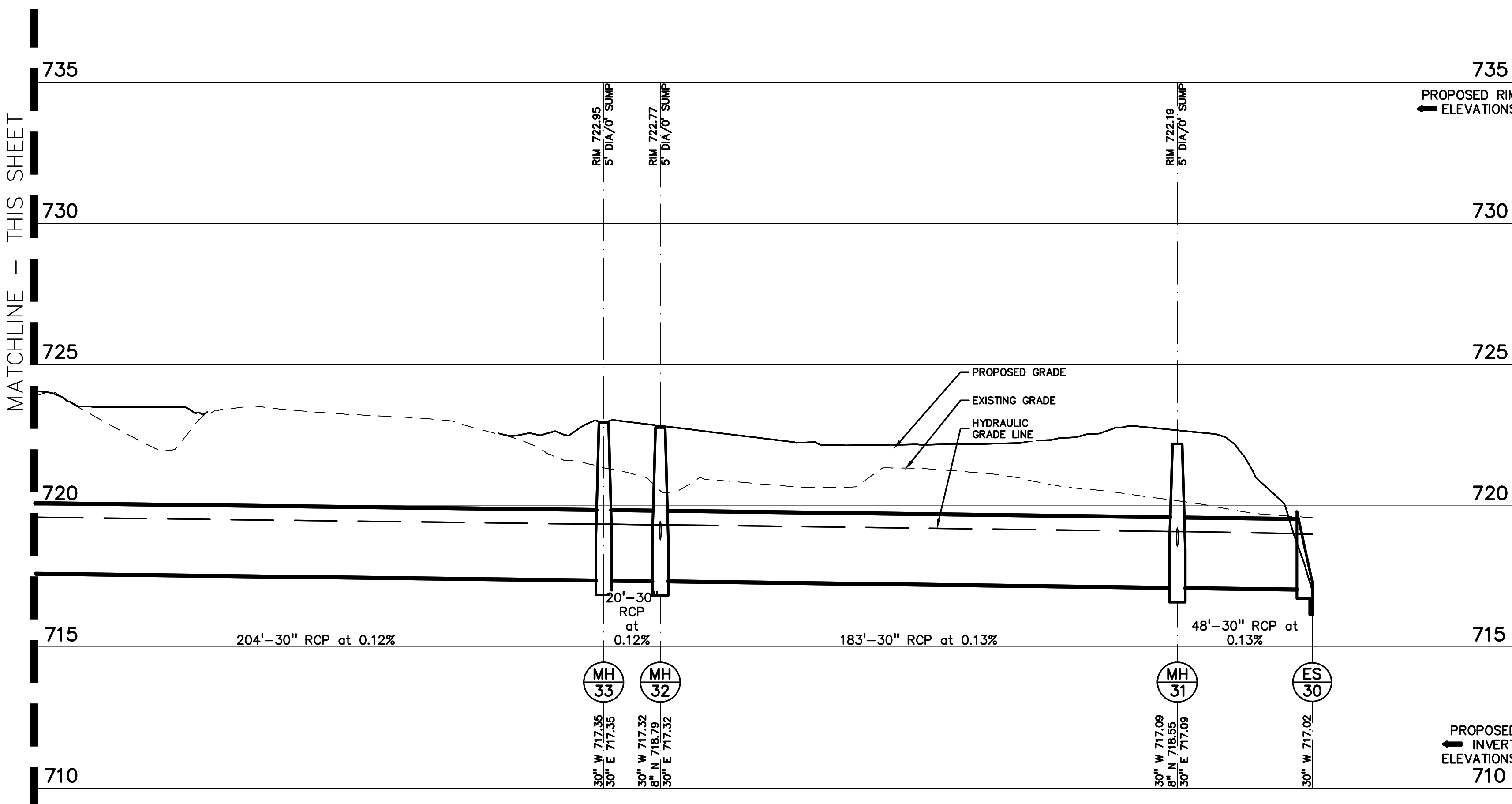
C-6.1



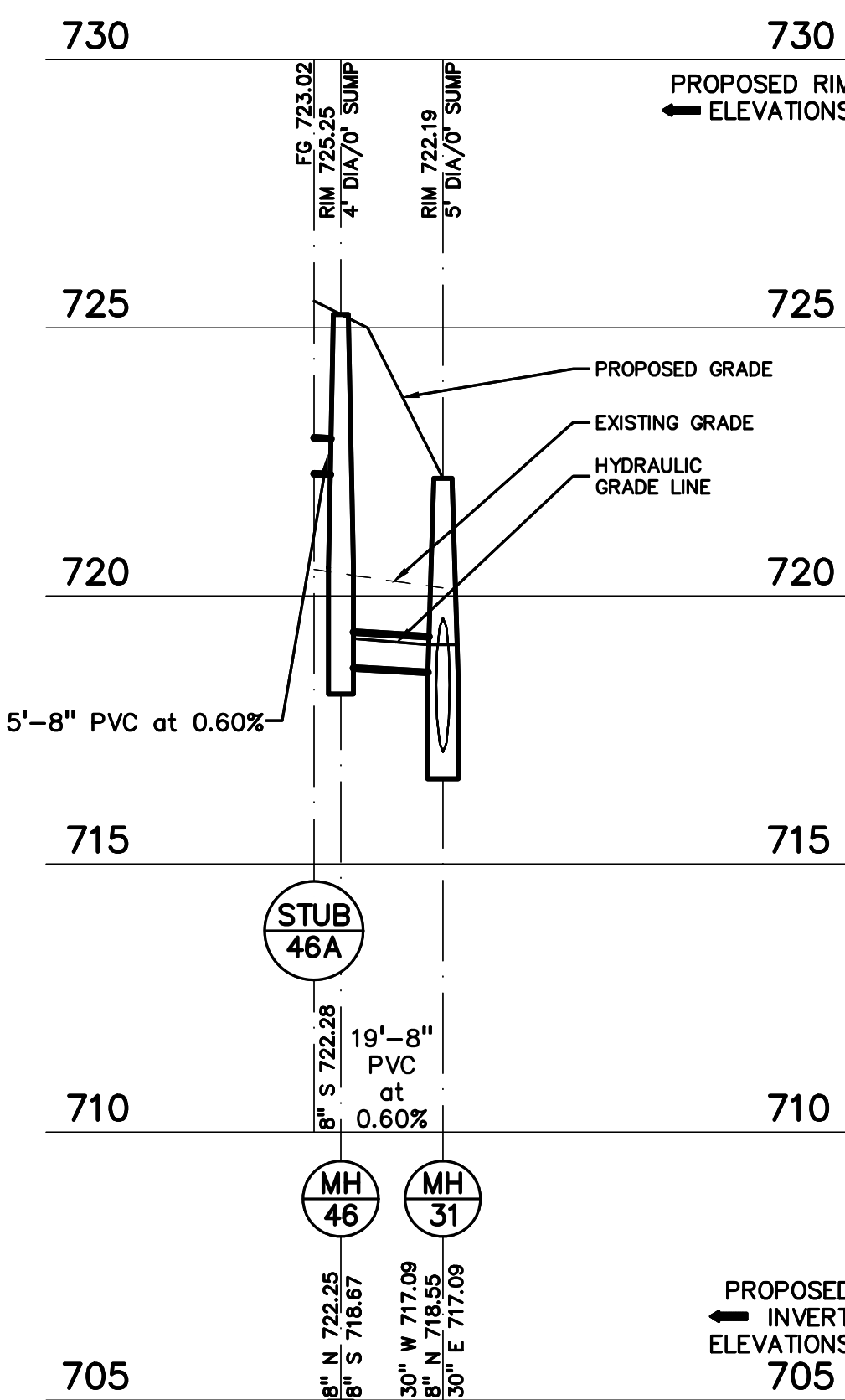
CAUTION!
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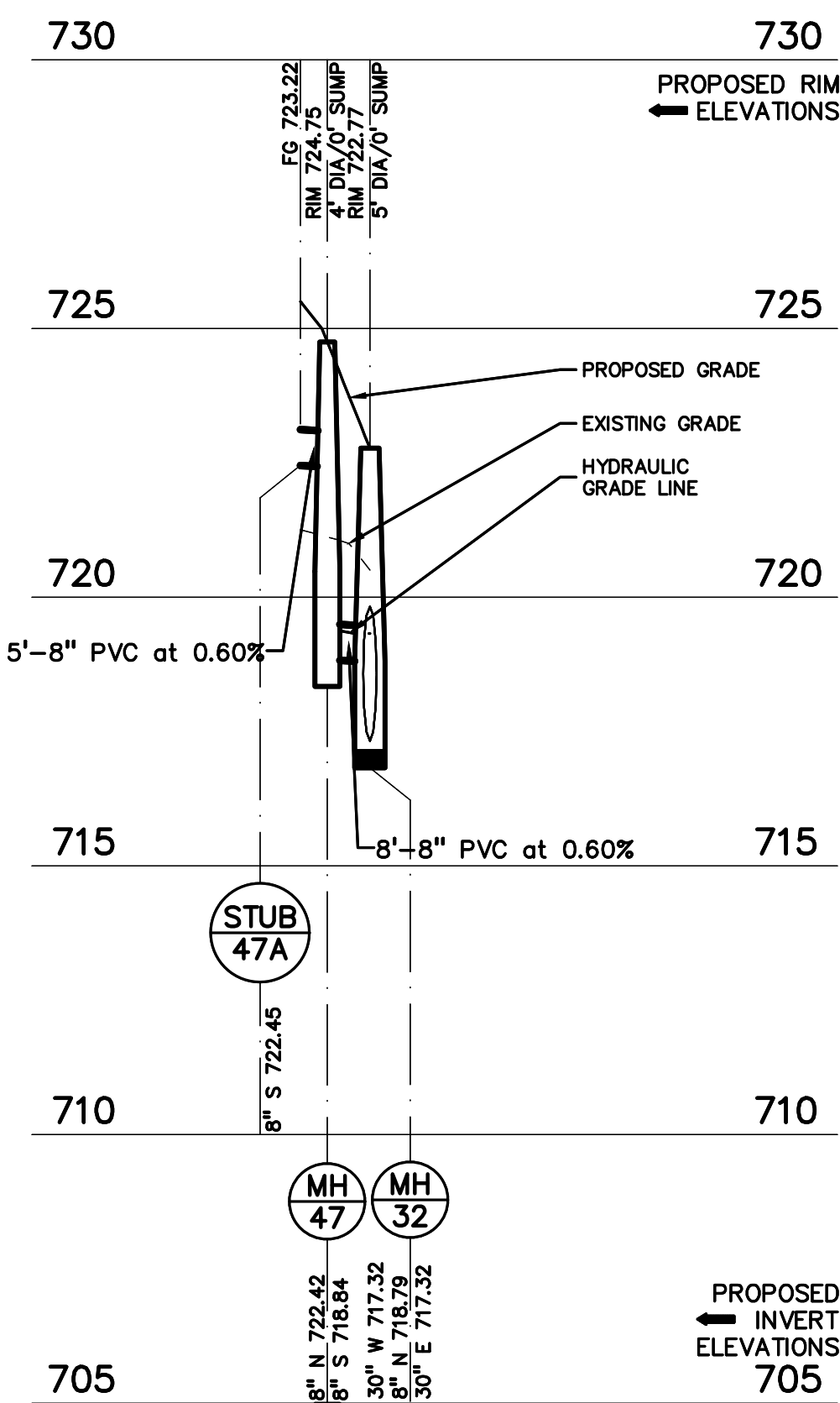
STORM 45-30 PROFILE
HORIZ: 1" = 30'
VERT: 1" = 3'



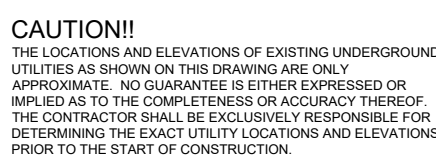
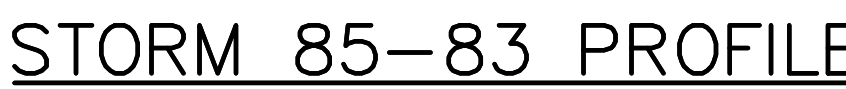
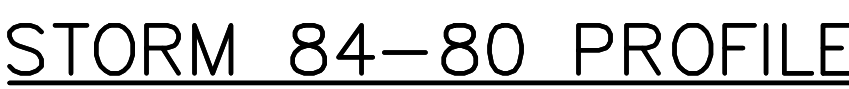
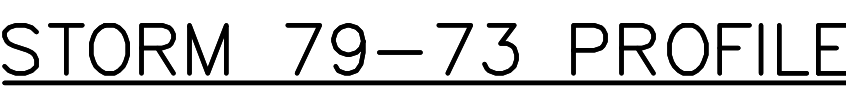
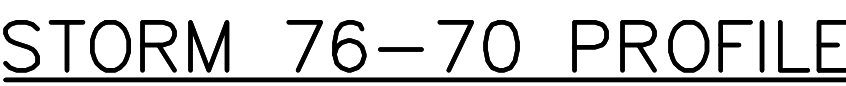
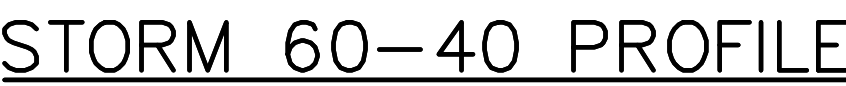
STORM 45-30 PROFILE
HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 46-31 PROFILE
HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 47-32 PROFILE
HORIZ: 1" = 30'
VERT: 1" = 3'



REGISTRATION SEAL



CONSULTANT

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PROJECT TITLE

New Smith Middle School Bld Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE

STORM SEWER PROFILES

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RCOC SUBMITTAL
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06-18-2024	CONSTRUCTION DOCUMENTS

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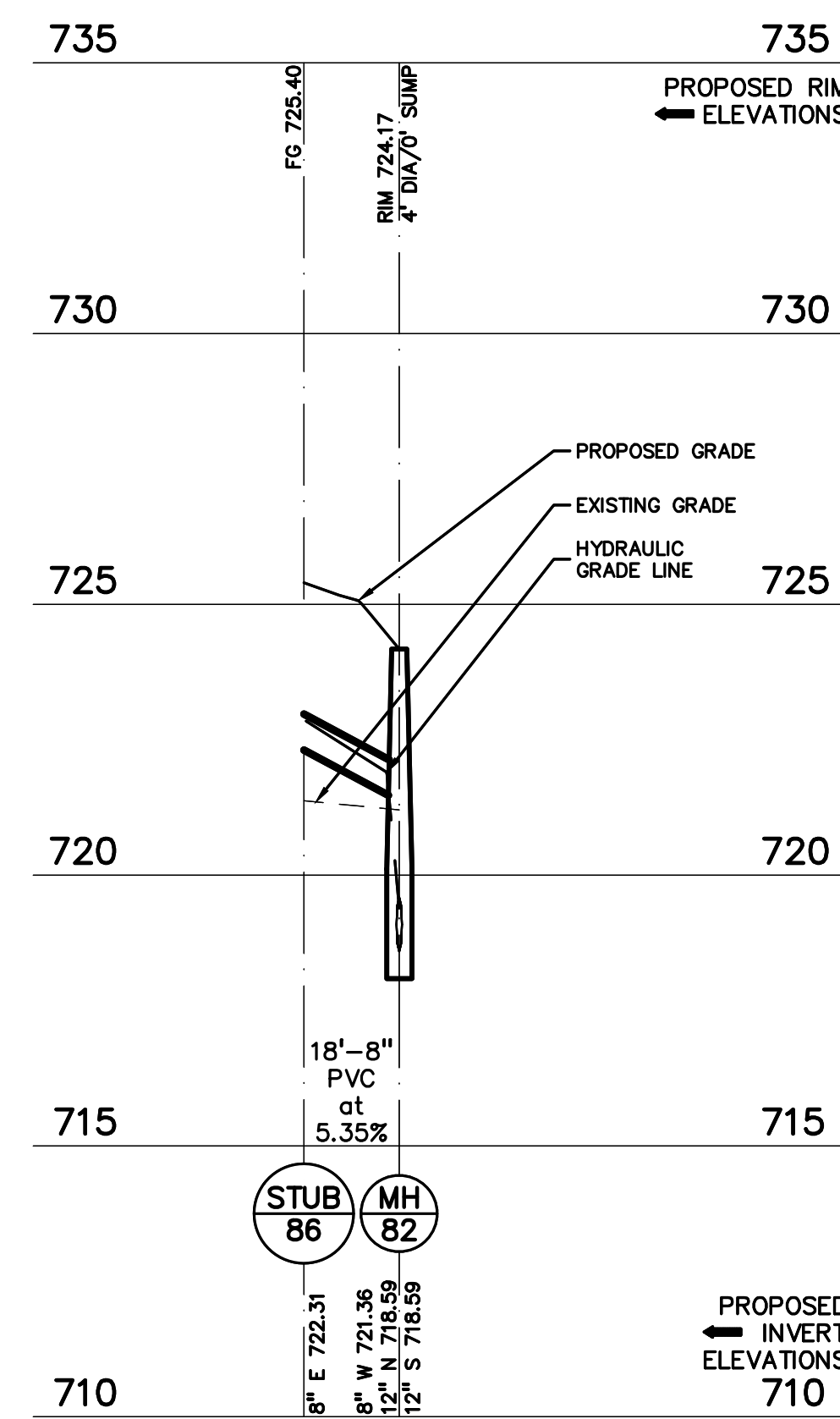
PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

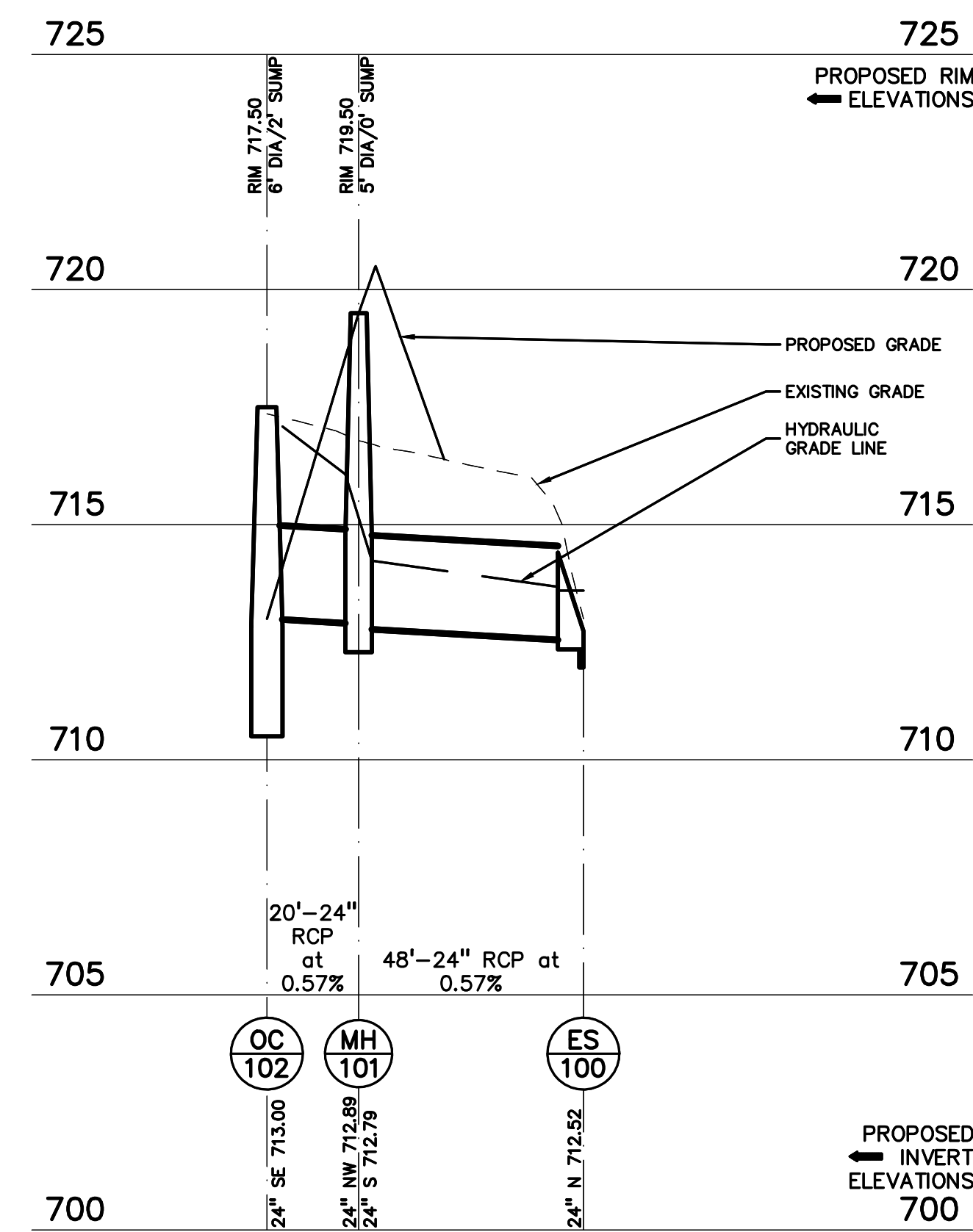
DRAWING NO.

C-6.3



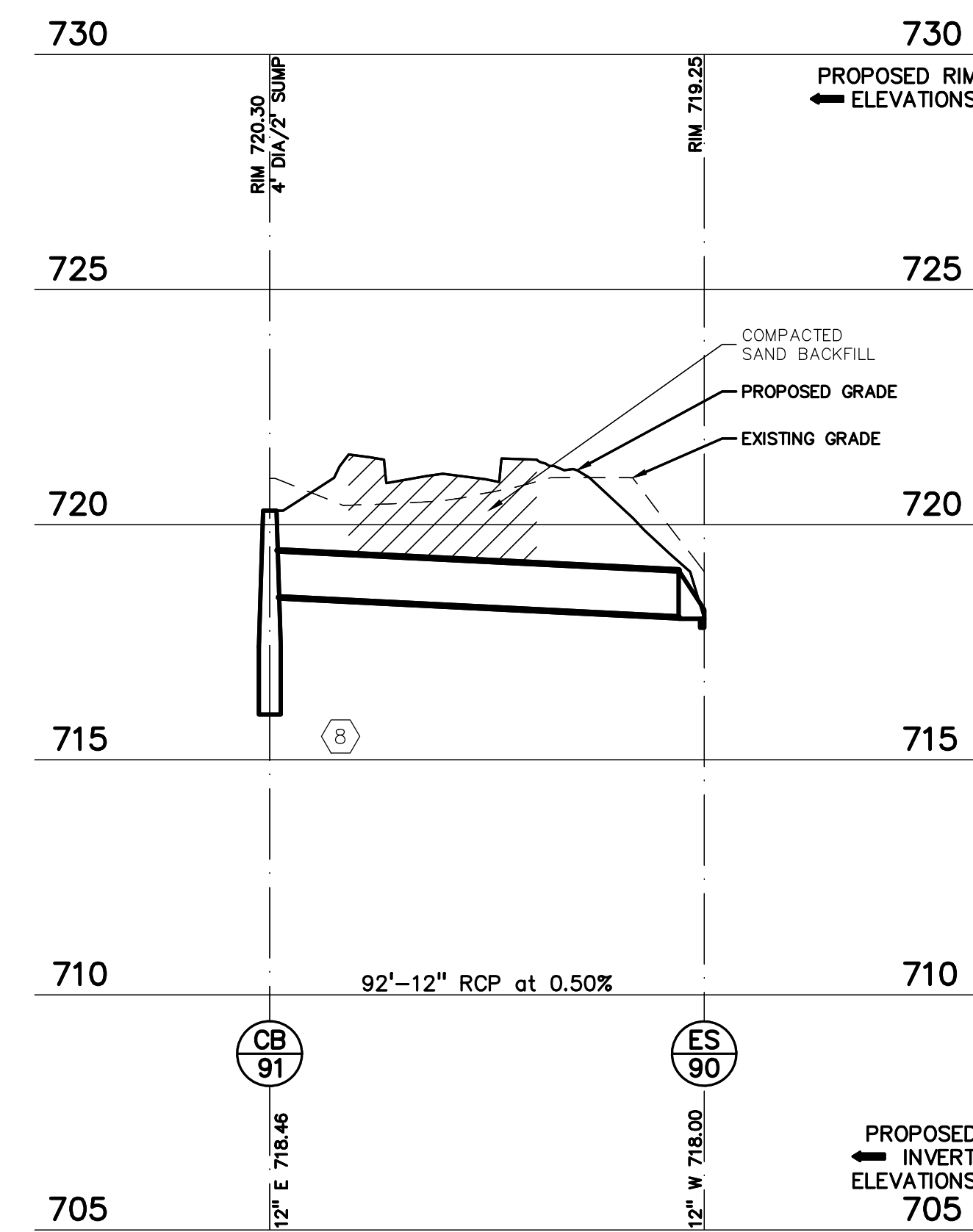
STORM 86-82 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



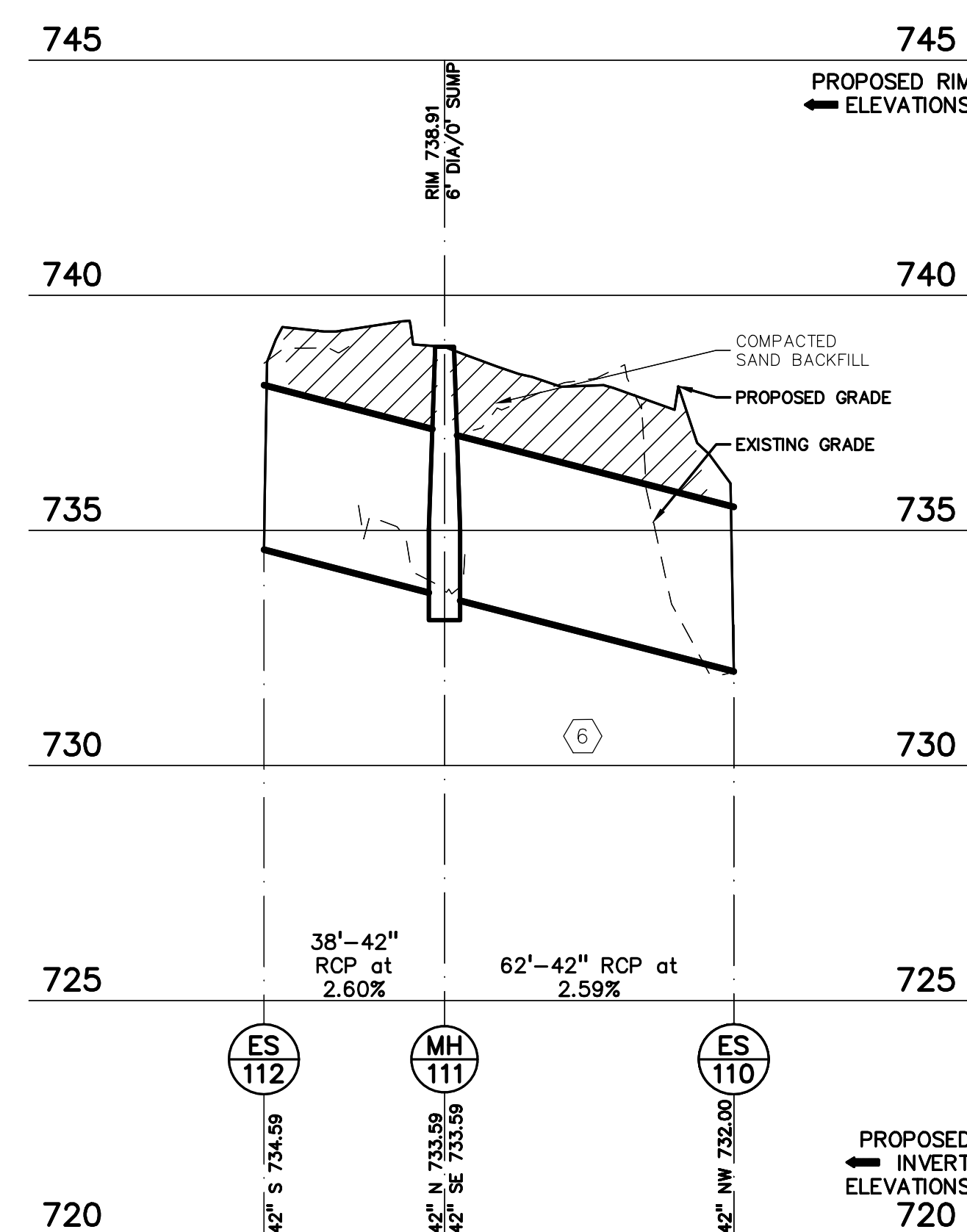
STORM 102-100 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



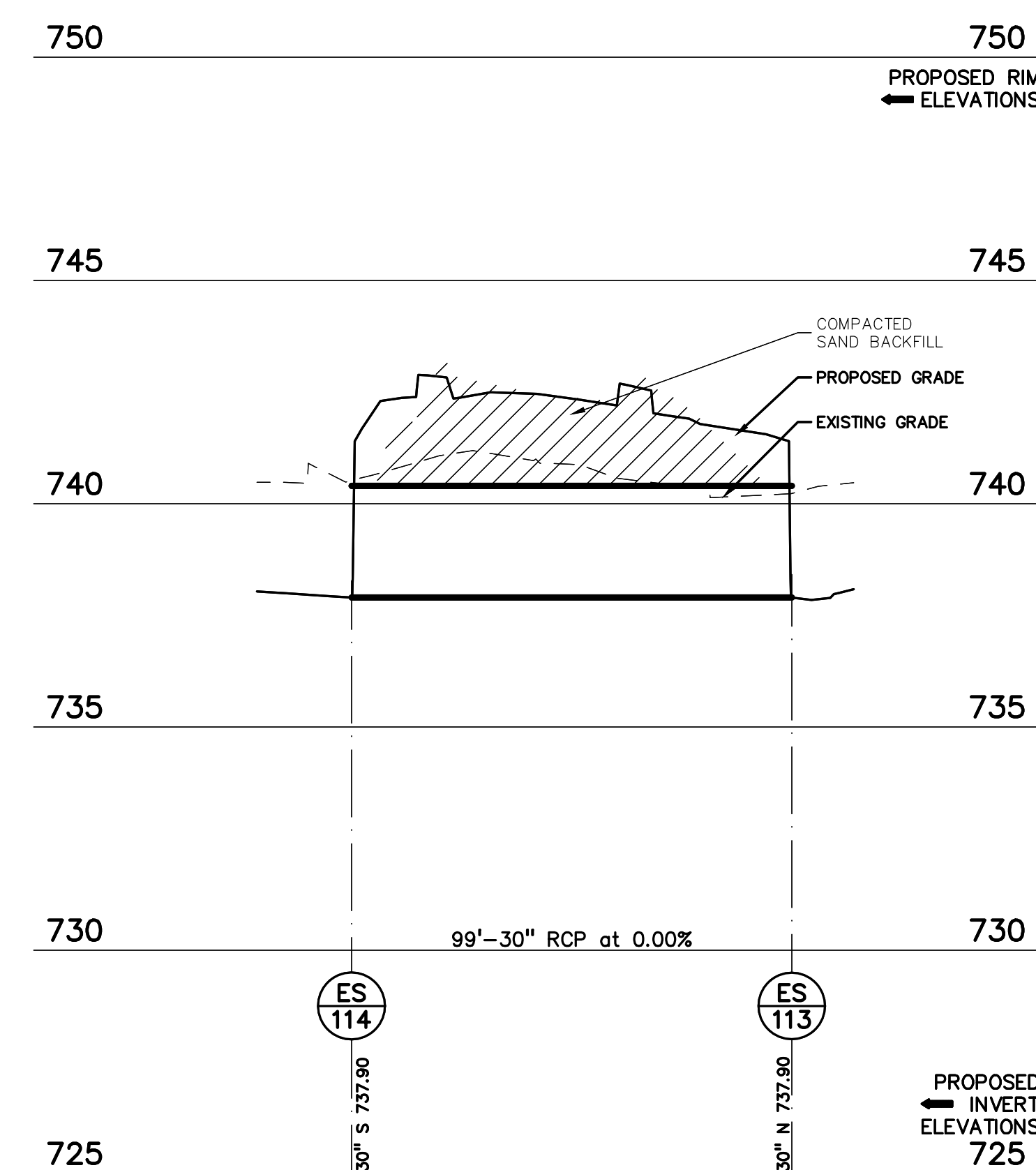
STORM 91-90 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



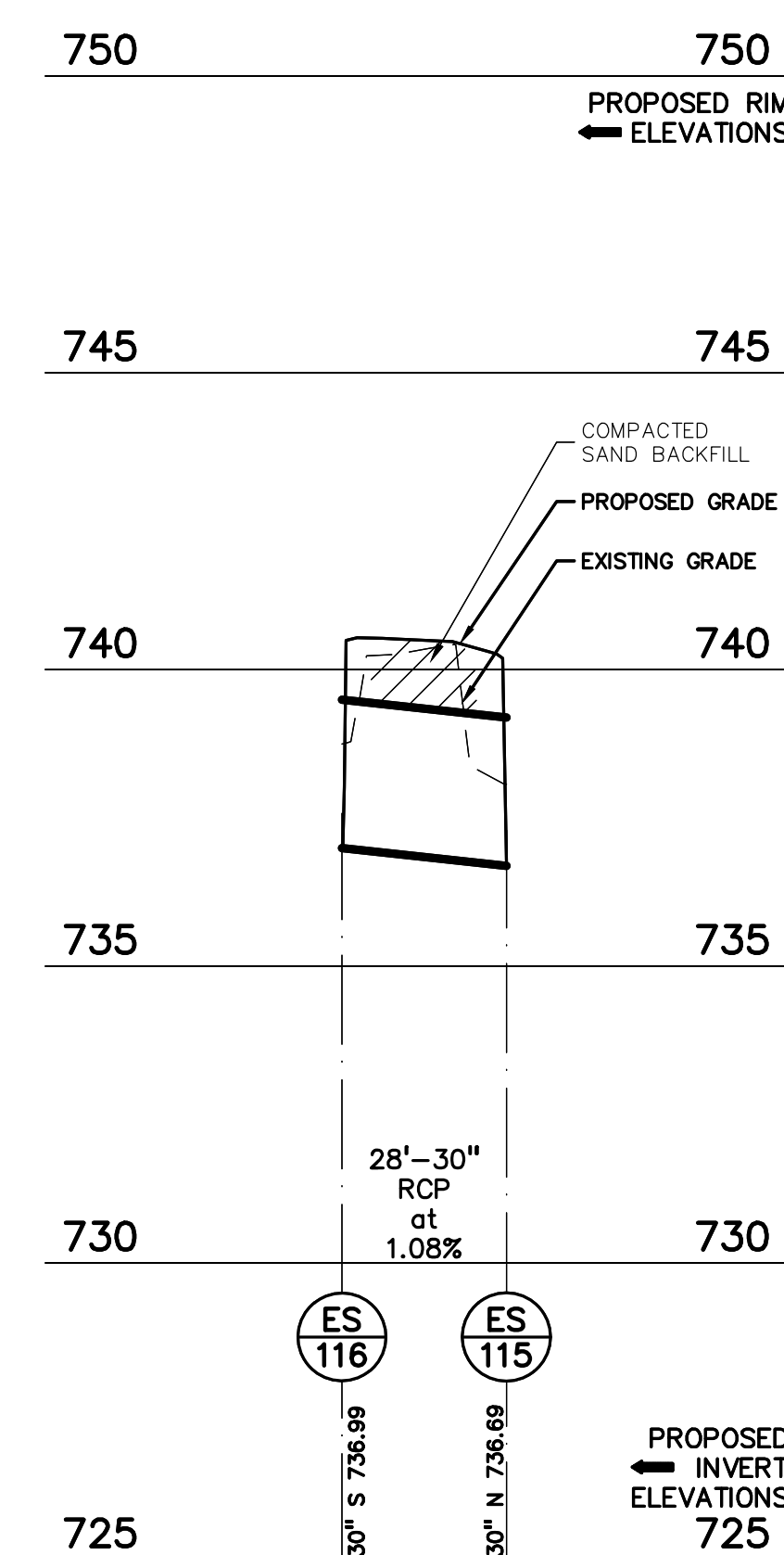
STORM 112-110 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 114-113 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



STORM 116-115 PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



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REGISTRATION SEAL



CONSULTANT



PROJECT TITLE
**New Smith Middle
School
Bld Package No. 03**

Troy School District
Troy, Michigan

DRAWING TITLE

**STORM SEWER
PROFILES**

ISSUE DATES

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DRAWN	<i>JW</i>
CHECKED	TD
APPROVED	TD

PROJECT NO.

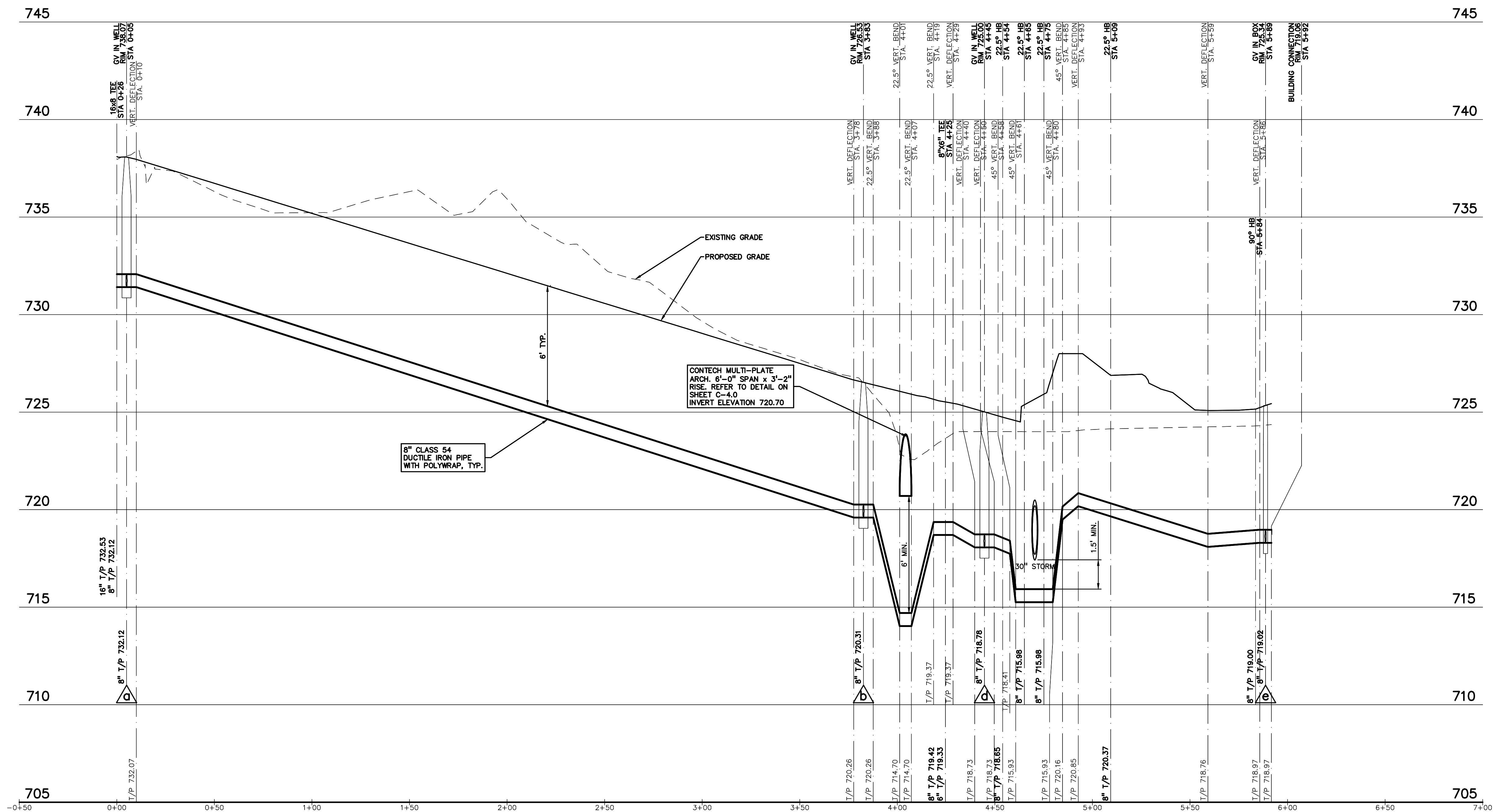
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CITY OF TROY PROJECT NO.: 24.910.3

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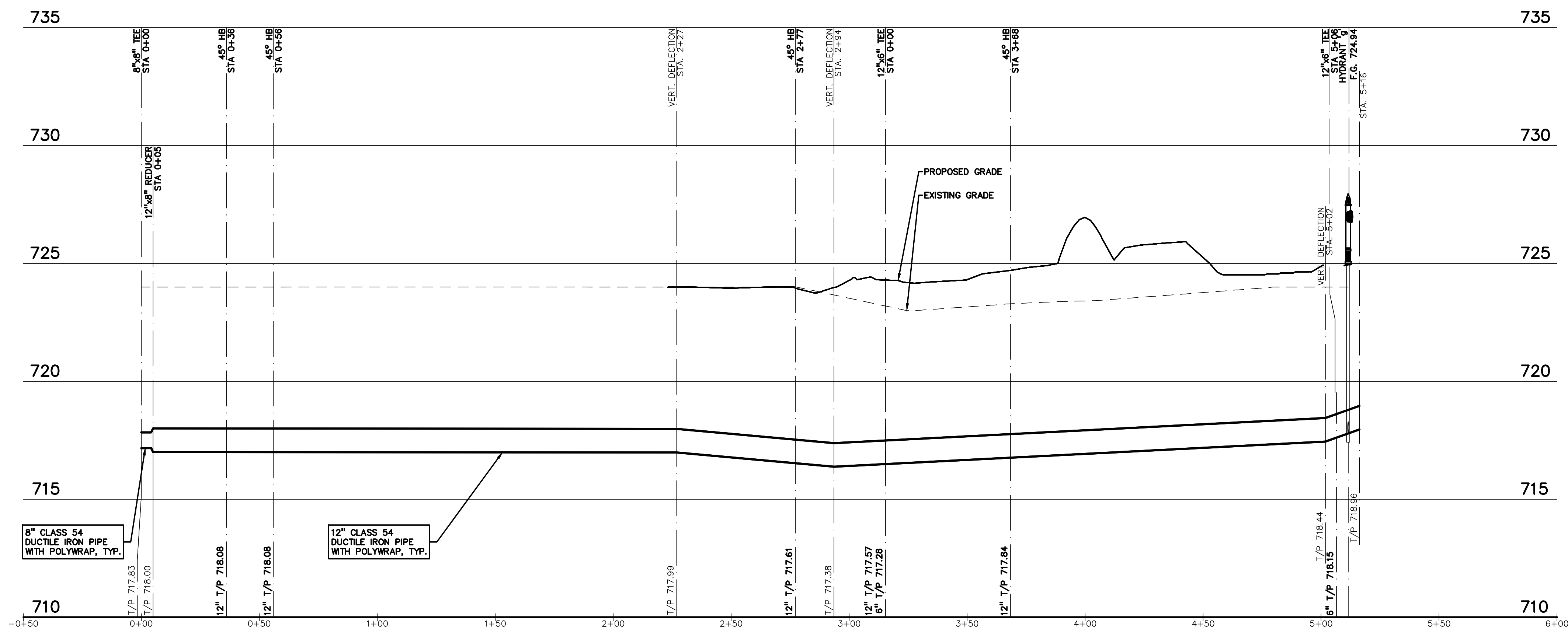
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WATER MAIN (LIVERNOIS TO BUILDING CONNECTION) PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



WATER MAIN (LOOP CONNECTION) PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



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REGISTRATION SEAL



CONSULTANT



PROJECT TITLE
New Smith Middle School Bid Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE

WATER MAIN PROFILES

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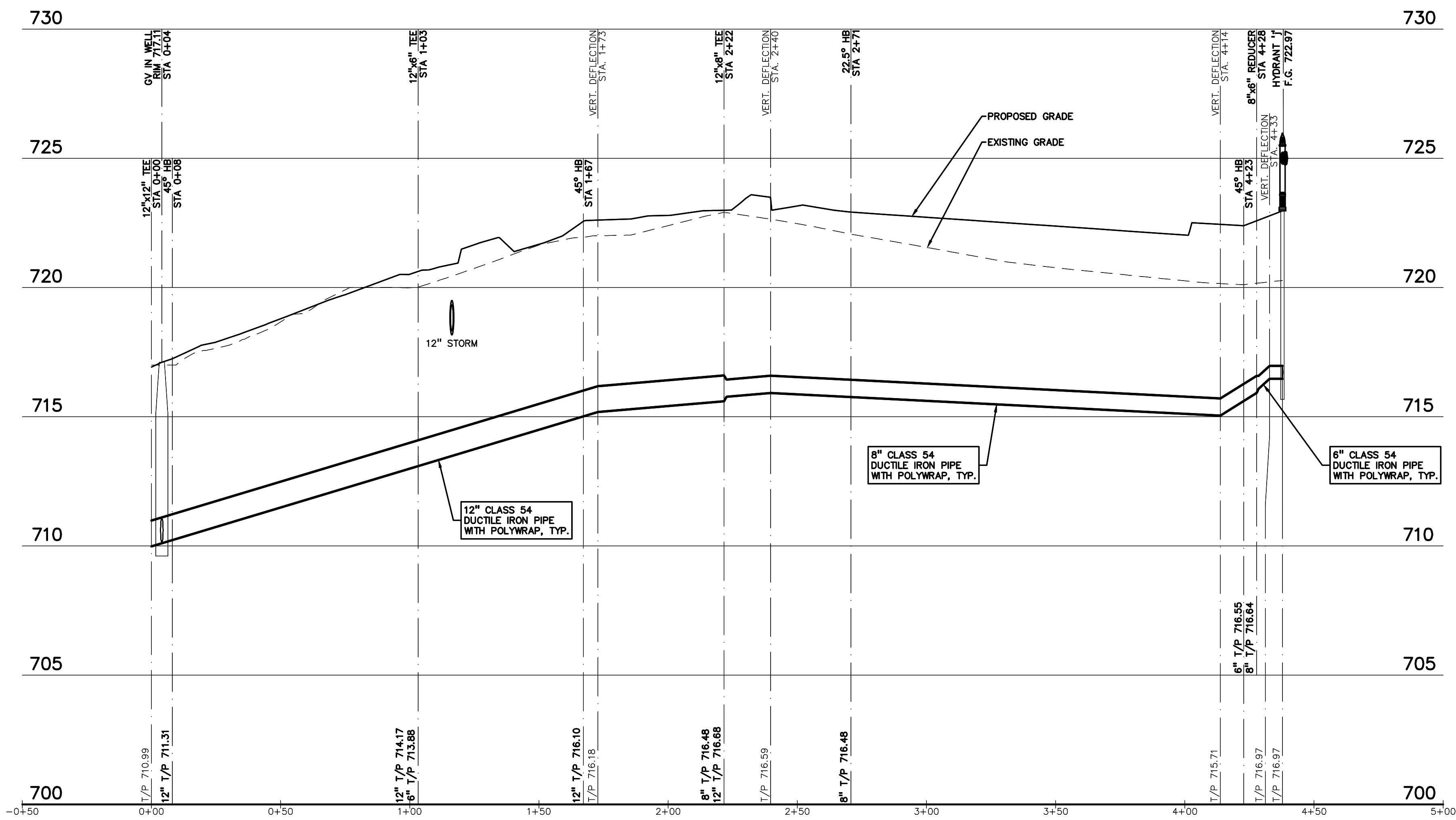
PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

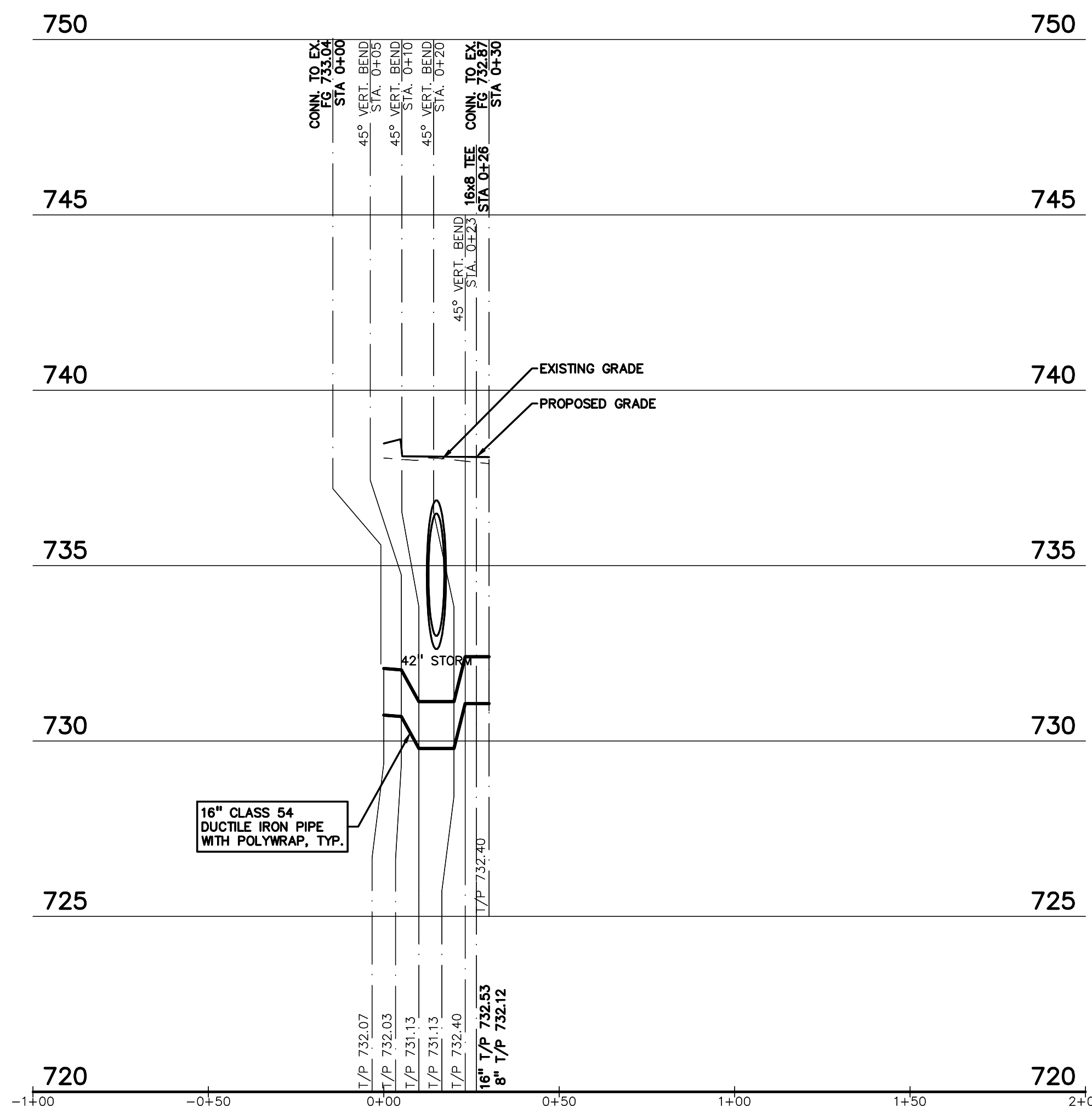
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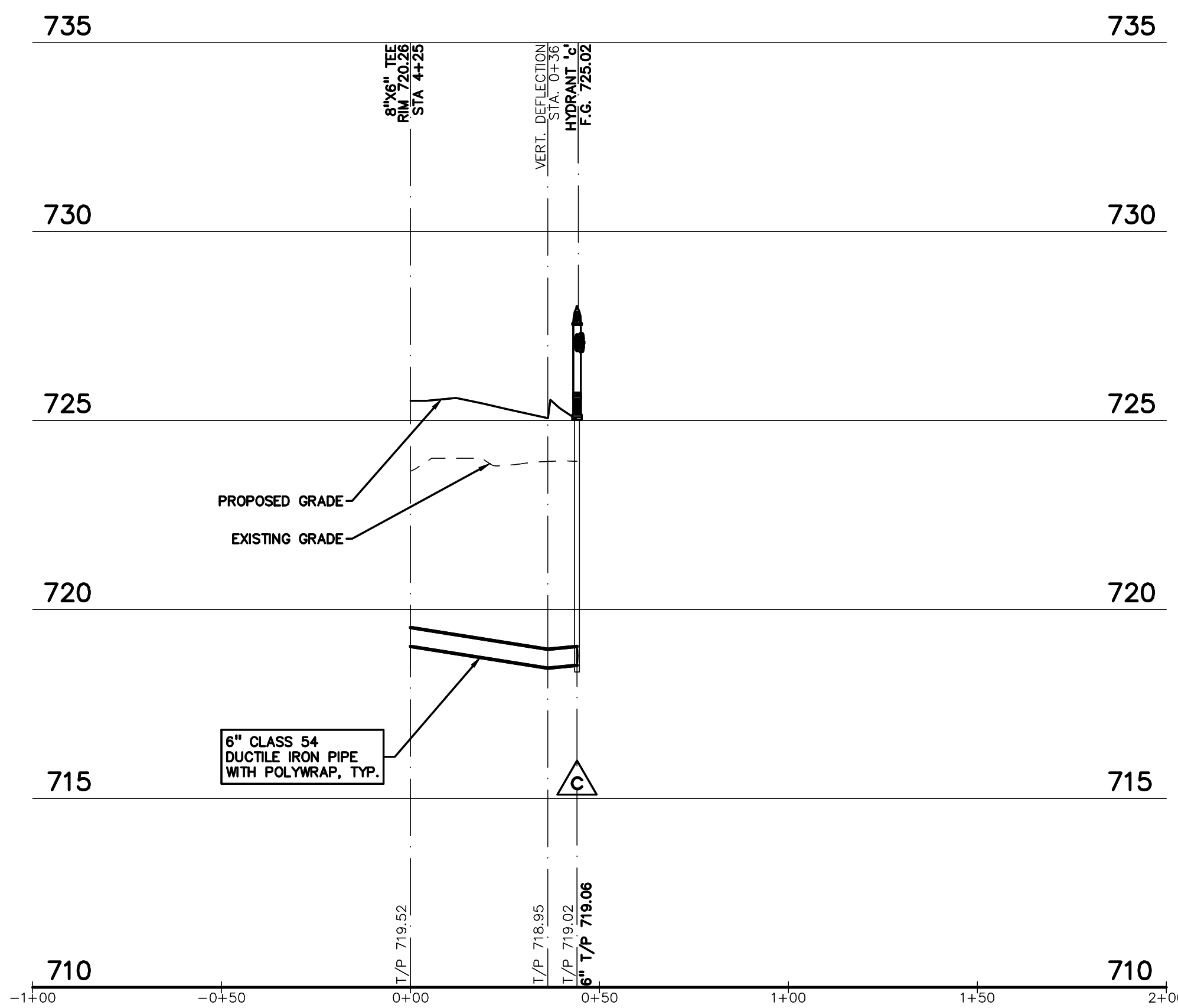
WATER MAIN (LOOP AND FIRE HYDRANT 'j') PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



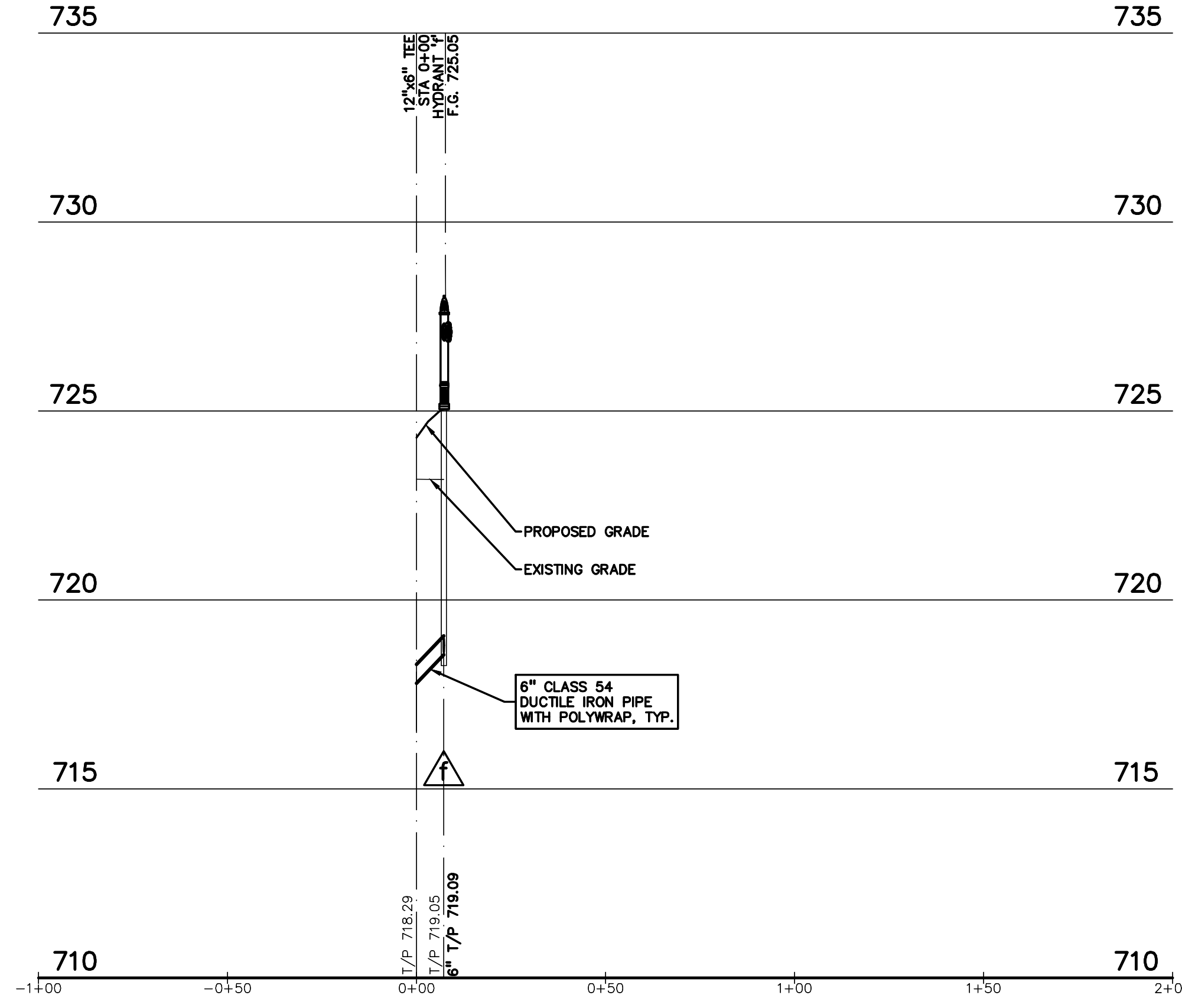
WATER MAIN (LIVERNOIS ROAD) PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



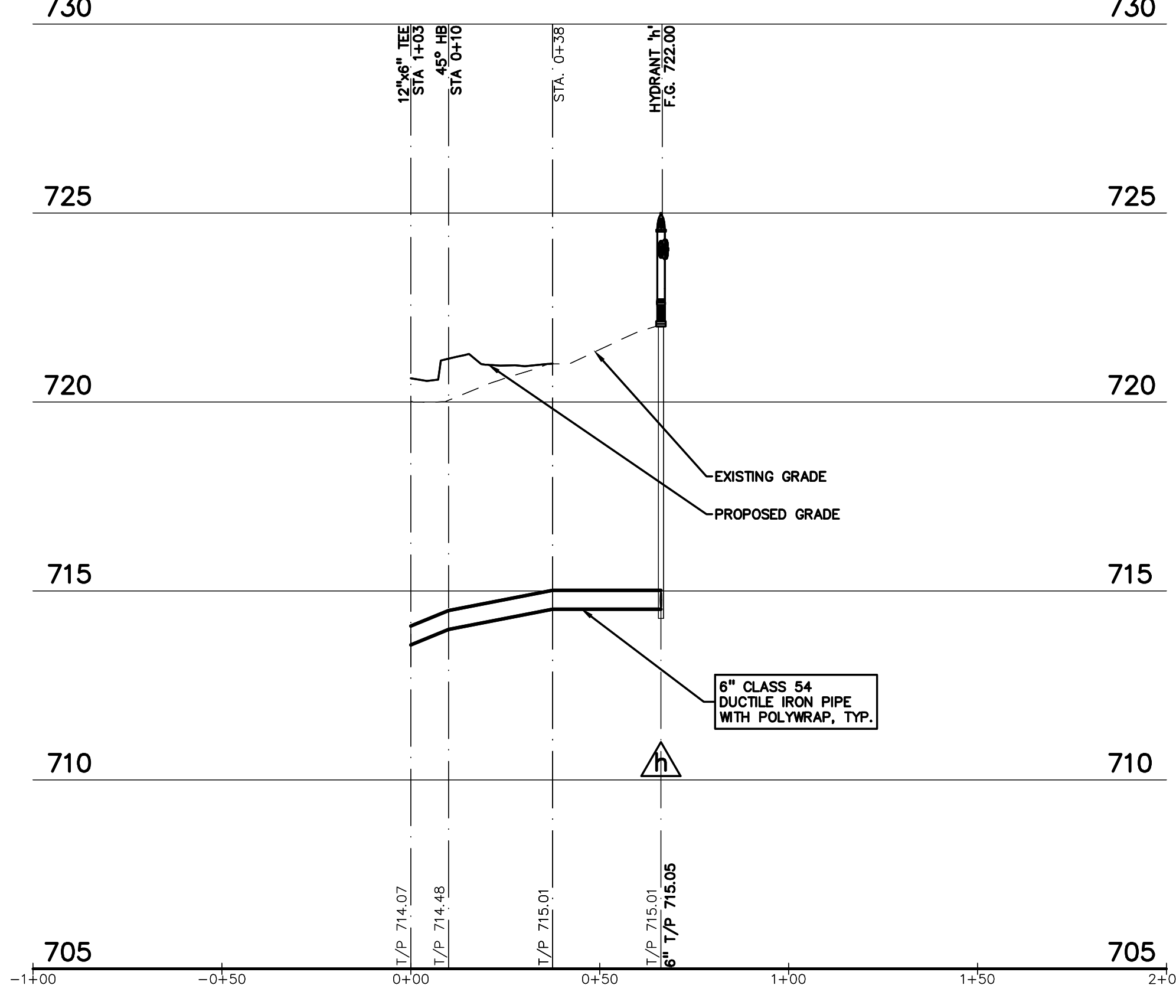
WATER MAIN (FIRE HYDRANT 'c') PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



WATER MAIN (FIRE HYDRANT 'f') PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



WATER MAIN (FIRE HYDRANT 'h') PROFILE

HORIZ: 1" = 30'
VERT: 1" = 3'



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REGISTRATION SEAL



CONSULTANT



PROJECT TITLE
New Smith Middle School Bid Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE
WATER MAIN PROFILES

ISSUE DATES

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07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

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CHECKED: TD

APPROVED: TD

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-6.6



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GENERAL UTILITY NOTES:

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF TROY
2. ALL TRENCHES UNDER OR WITHIN THREE (3) FEET OR THE FORTY-FIVE (45) DEGREE ZONE OF INFLUENCE LINE OF EXISTING AND/OR PROPOSED PAVEMENT, BUILDING PAD OR DRIVE APPROACH SHALL BE BACKFILLED WITH SAND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF MAXIMUM UNIT WEIGHT (ASTM D-1557). ALL OTHER TRENCHES TO BE COMPACTED TO 90% OR BETTER.
3. WHERE EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER TO CENTER, AROUND PERIPHERY OF OPENING TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
4. THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING UTILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE DESIGN ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. CONTRACTOR SHALL FIELD VERIFY UTILITIES.
5. THE CONTRACTOR SHALL COORDINATE TO ENSURE ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED FOR THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, IRRIGATION, ETC. IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO THE PLACEMENT OF THE PROPOSED PAVEMENT AND LANDSCAPING.
6. PIPE LENGTHS INDICATED ARE FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
7. CONTRACTOR SHALL INSPECT ALL EXISTING PUBLIC STORM SEWER, SANITARY SEWER AND WATER MAIN STRUCTURES WITHIN THE LIMITS OF CONSTRUCTION AND WITH THE GOVERNING AGENCY INSPECTOR PRIOR TO ESTABLISHING FINAL GRADE. NOTIFY THE ENGINEER, OWNER/DEVELOPER, AND GOVERNING AGENCY IF STRUCTURE IS DEEMED TO BE STRUCTURALLY UNSOUND AND/OR IN NEED OF REPAIR.

STORM SEWER NOTES:

1. ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE REINFORCED CONCRETE PIPE (RCP C-76) CLASS IV WITH MODIFIED TONGUE AND GROOVE JOINT WITH RUBBER GASKETS UNLESS SPECIFIED OTHERWISE (ASTM C-443).
2. ALL STORM SEWER 10" OR LESS AND/OR LEADS SHALL BE SDR 26.
3. JOINTS FOR P.V.C. PIPE SHALL BE ELASTOMERIC (RUBBER GASKET) AS SPECIFIED IN A.S.T.M. DESIGNATION D-3212.

WATER MAIN NOTES:

1. ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF 6" BELOW FINISH GRADE. WHEN WATER MAINS MUST DIP TO PASS UNDER A STORM SEWER OR SANITARY SEWER, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH BY THE USE OF VERTICAL TWENTY TWO AND A HALF (22.5°) DEGREE BENDS, PROPERLY ANCHORED.
2. ALL TEES, BENDS, CONNECTIONS, ETC. ARE CONSIDERED INCIDENTAL TO THE JOB.
3. PHYSICAL CONNECTIONS SHALL NOT BE MADE BETWEEN EXISTING AND NEW WATER MAINS UNTIL REQUIRED TESTING IS SATISFACTORILY COMPLETED.
4. MAINTAIN 10' HORIZONTAL CLEARANCE BETWEEN OUTER EDGE OF WATER MAIN AND ANY SANITARY/STORM SEWER OR STRUCTURE.
5. NO PHYSICAL CONNECTION TO THE EXISTING WATER MAIN CAN BE MADE UNTIL ALL NEW WATER MAIN PASSES PRESSURE AND BACTERIOLOGICAL TESTS TO THE SATISFACTION OF THE CITY OF TROY.
6. ALL WATER MAIN AND FITTINGS (3" DIAMETER AND LARGER) SHALL BE DUCTILE IRON, CLASS 54.
7. WATER MAIN SERVICE LEADS SHALL BE TYPE 'K' ANNEALED SEAMLESS COPPER WITH FLARED FITTINGS, UNLESS OTHERWISE NOTED.
8. ALL FIRE HYDRANTS SHALL BE EJWB #58R MODEL #250 PER XXXX STANDARDS.
9. ALL HYDRANTS TO BE A MINIMUM OF 5' FROM BACK OF CURB, TYP.
10. ALL NECESSARY FITTINGS, THRUST BLOCKS, RESTRAINING CLANDS, BLOW OFFS, ETC. FOR WATER MAIN ARE CONSIDERED INCIDENTAL TO THIS PROJECT. THE CONTRACTOR SHALL INSTALL THESE ITEMS AS NECESSARY AND AS REQUIRED BY THE CITY OF TROY.
11. PEA GROUP ANTICIPATES WATER MAIN WILL BE INSTALLED BY OPEN CUT UNLESS OTHERWISE NOTED ON THE PLANS. IF CONTRACTOR CHOOSES A DIFFERENT METHOD OF CONSTRUCTION THAN SHOWN ON THE APPROVED PLANS UPON WHICH THE PERMIT WAS GRANTED, THE CONTRACTOR WILL BE RESPONSIBLE TO CONTACT THE REGULATORY AGENCIES TO UPDATE THE PERMIT.
12. THE WATER MAIN CONTRACTOR SHALL NOTIFY THE INSPECTION DEPARTMENT OF THE CITY OF TROY AT LEAST THREE WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION.

SANITARY SEWER NOTES:

1. DOWNSPOUTS, WEEP TILE, FOOTING DRAINS OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A SANITARY SEWER
2. ALL SANITARY LEADS SHALL BE CONSTRUCTED AT 1.00% MINIMUM SLOPE.
3. ALL SANITARY SEWER 8" OR LARGER SHALL BE P.V.C. TRUSS PIPE (ASTM D2680) AND FITTINGS, WITH ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
4. ALL SANITARY SEWER LEADS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 23.5 PIPE AND FITTINGS. ALL JOINTS TO BE ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
5. SANITARY LEADS SHALL BE PROVIDED WITH CLEANOUTS EVERY 100 FEET AND AT EVERY BEND AS SHOWN. ALL CLEANOUTS TO BE PROVIDED WITH E.J.L.W. #1565 BOX OR EQUAL.

CONSTRUCTION MATERIAL SUBMITTALS

UNLESS REQUIRED OTHERWISE IN THE PROJECT SPECIFICATIONS, THE CONTRACTOR SHALL ONLY SUBMIT THE FOLLOWING CONSTRUCTION MATERIAL SUBMITTALS AS APPLICABLE TO THE PLANS FOR REVIEW BY THE ENGINEER, UNLESS APPROVED IN ADVANCE AND IN WRITING BY THE ENGINEER, ANY MATERIAL SUBMITTALS PROVIDED TO THE ENGINEER FOR REVIEW IN ADDITION TO THIS LIST SHALL BE RETURNED TO THE CONTRACTOR WITHOUT A REVIEW BEING PERFORMED.

1. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
2. UTILITY TRENCH BACKFILL MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
3. RIP RAP MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
4. STORM AND SANITARY SEWER PIPING INCLUDING JOINTS
5. STORM AND SANITARY SEWER STRUCTURES
6. STORM AND SANITARY SEWER STRUCTURE FRAME AND COVERS INCLUDING CLEAN OUTS
7. WATER DISTRIBUTION SYSTEM PIPING INCLUDING JOINTS
8. WATER DISTRIBUTION SYSTEM STRUCTURES
9. WATER DISTRIBUTION SYSTEM STRUCTURE FRAME AND COVERS
10. WATER DISTRIBUTION SYSTEM SHUT OFF BOXES
11. WATER DISTRIBUTION SYSTEM FIRE HYDRANTS
12. WATER DISTRIBUTION SYSTEM GATE VALVES
13. STORM WATER MANAGEMENT OUTLET CONTROL STRUCTURES INCLUDING COVERS OR GRATES
14. STORM WATER MANAGEMENT OUTLET SEDIMENTATION BASIN RISERS INCLUDING GRATES
15. STORM WATER MANAGEMENT MECHANICAL PRE-TREATMENT UNITS INCLUDING COVERS
16. STORM WATER MANAGEMENT UNDERGROUND DETENTION SYSTEM MATERIAL AND SHOP DRAWINGS DEPICTING THE LAYOUT OF THE SYSTEM
17. PAVEMENT AGGREGATE BASE MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
18. PAVEMENT UNDERDRAIN MATERIAL AND BACKFILL WITH ALL BACKFILL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
 - *CONCRETE MIX DESIGN REVIEW CHECKLIST (FORM 2000)
 - *SUPERPAVE MIX DESIGN CHECKLIST (FORM 1862)
 - *MARSHALL MIX DESIGN CHECKLIST (FORM 1849)
20. SITE FENCING AND GATES INCLUDING FOOTINGS
21. SITE RAILINGS INCLUDING FOOTING OR EMBEDMENTS
22. ANY ITEMS SHOWN IN THE PLANS OR DETAIL SHEETS THAT SPECIFICALLY STATE FOR THE CONTRACTOR TO SUBMIT A SHOP DRAWING TO THE ENGINEER FOR REVIEW. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO:
 - ** RETAINING WALL MATERIAL AND STRUCTURAL CALCULATIONS
 - ** ANY SPECIALITY ITEMS SHOWN IN THE PLANS OR DETAIL SHEETS THAT SPECIFICALLY DO NOT STATE FOR THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING TO THE ENGINEER FOR REVIEW BUT THE CONTRACTOR REQUESTS TO BE REVIEWED. THE CONTRACTOR'S REQUEST FOR REVIEW MUST BE IN WRITING AND APPROVED BY THE ENGINEER PRIOR TO SUBMITTING THE INFORMATION.

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT OSHA, MDOT AND MUNICIPALITY STANDARDS AND REGULATIONS.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT THE ENGINEER SHOULD THEY ENCOUNTER ANY DESIGN ISSUES DURING CONSTRUCTION. IF THE CONTRACTOR MAKES DESIGN MODIFICATIONS WITHOUT THE WRITTEN DIRECTION OF THE DESIGN ENGINEER, THE CONTRACTOR DOES SO AT HIS OWN RISK.
4. ALL NECESSARY PERMITS, TESTING, BONDS AND INSURANCES ETC., SHALL BE PAID FOR BY THE CONTRACTOR. THE OWNER SHALL PAY FOR ALL CITY INSPECTION FEES.
5. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION. IF NO NOTIFICATION IS GIVEN AND DAMAGE RESULTS, SAID DAMAGE WILL BE REPAIRED AT SOLE EXPENSE OF THE CONTRACTOR. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.
6. CONTRACTOR SHALL VERIFY THAT THE PLANS AND SPECIFICATIONS ARE THE VERY LATEST PLANS AND SPECIFICATIONS AND FURTHERMORE, VERIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN APPROVED. ALL ITEMS CONSTRUCTED BY THE CONTRACTOR PRIOR TO RECEIVING FINAL APPROVAL, HAVING TO BE ADJUSTED OR RE-DONE, SHALL BE AT THE CONTRACTOR'S EXPENSE. SHOULD THE CONTRACTOR ENCOUNTER A CONFLICT BETWEEN THESE PLANS AND/OR SPECIFICATIONS, THEY SHALL SEEK CLARIFICATION IN WRITING FROM THE ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT SOLE EXPENSE TO THE CONTRACTOR.
7. ANY WORK WITHIN THE STREET OR HIGHWAY RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
8. ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DISTURBED DUE TO CONSTRUCTION, SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADING, SIGNAGE, LIGHTS AND TRAFFIC CONTROL DEVICES TO PROTECT THE WORK AND SAFELY MAINTAIN TRAFFIC IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION). THE DESIGN ENGINEER, OWNER, AND STATE SHALL NOT BE HELD LIABLE FOR ANY CLAIMS RESULTING FROM ACCIDENTS OR DAMAGES CAUSED BY THE CONTRACTOR'S FAILURE TO COMPLY WITH TRAFFIC AND PUBLIC SAFETY REGULATIONS DURING THE CONSTRUCTION PERIOD.
10. THE USE OF CRUSHED CONCRETE IS PROHIBITED ON THE PROJECT WITHIN 100 FEET OF ANY WATER COURSE (STREAM, RIVER, COUNTY DRAIN, ETC.) AND LAKE, REGARDLESS OF THE APPLICATION OR LOCATION OF THE WATER COURSE OR LAKE RELATIVE TO THE PROJECT LIMITS.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND/OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.

PAVING NOTES:

1. IN AREAS WHERE NEW PAVEMENTS ARE BEING CONSTRUCTED, THE TOPSOIL AND SOIL CONTAINING ORGANIC MATTER SHALL BE REMOVED PRIOR TO PAVEMENT CONSTRUCTION.
2. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF FROST SLAB AT EXTERIOR BUILDING DOORS.
3. CONSTRUCTION TRAFFIC SHOULD BE MINIMIZED ON THE NEW PAVEMENT. IF CONSTRUCTION TRAFFIC IS ANTICIPATED ON THE PAVEMENT STRUCTURE, THE INITIAL LIFT THICKNESS COULD BE INCREASED AND PLACEMENT OF THE FINAL LIFT COULD BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. THIS ACTION WILL ALLOW REPAIR OF LOCALIZED FAILURE, IF ANY DOES OCCUR, AS WELL AS REDUCE LOAD DAMAGE ON THE PAVEMENT SYSTEM.
4. ALL EXPANSION JOINTS AND CONCRETE PAVEMENT JOINTS TO BE SEALED.
5. CONCRETE PAVEMENT JOINTING -- UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION:
 - 5.1. WHERE PROPOSED CONCRETE ABUTS A STRUCTURE, PROVIDE A MINIMUM 1/2" EXPANSION JOINT. THE JOINT FILLER BOARD MUST BE AT LEAST THE FULL DEPTH OF THE CONCRETE AND HELD DOWN A 1/2" TO ALLOW FOR SEALING.
 - 5.2. WHERE PROPOSED CONCRETE ABUTS EXISTING CONCRETE OR IN BETWEEN POURS OF PROPOSED CONCRETE (CONSTRUCTION JOINT), PROVIDE 5/8" DOWELS EVERY 30' CENTER TO CENTER HALF ALONG THE THICKNESS OF THE PROPOSED PAVEMENT. ALTERNATE DOWELS SIZES AND SPACING MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
 - 5.3. WHERE PROPOSED CONCRETE ABUTS EXISTING OR PROPOSED SIDEWALK OR CURBING, PROVIDE A MINIMUM 1/2" EXPANSION JOINT.
 - 5.4. CONTROL, LONGITUDINAL AND/OR TRANSVERSE JOINTS SHALL BE PLACED TO PROVIDE PANELS WITHIN THE PAVEMENT AS CLOSE AS POSSIBLE WITH THE FOLLOWING MAXIMUM SPACING PARAMETERS:
 - 5.4.1. 6-INCH THICK CONCRETE PAVEMENT: 12' X 12'
 - 5.4.2. 8-INCH THICK CONCRETE PAVEMENT: 15' X 15'
 - 5.5. IRREGULAR-SHAPED PANELS MAY REQUIRE THE USE OF REINFORCING MESH OR FIBER MESH AS DETERMINED BY THE ENGINEER. THE USE OF MESH MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
 - 5.6. IF A JOINT PLAN IS NOT PROVIDED IN THE PLANS, THE CONTRACTOR SHALL SUBMIT ONE TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
6. CONCRETE CURBING JOINTING -- UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION JOINTS WHEN ADJACENT TO ASPHALT PAVEMENT:
 - 6.1.1. PLACE CONTRACTION JOINTS AT 10' INTERVALS
 - 6.1.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
 - 6.1.3. PLACE 1" EXPANSION JOINT:
 - 6.1.3.1. AT SPRING POINTS OF INTERSECTIONS OR ONE OF THE END OF RADIUS LOCATIONS IN A CURVE
 - 6.1.3.2. AT 400' MAXIMUM INTERVALS ON STRAIGHT RUNS
 - 6.1.3.3. AT THE END OF RADIUS AT OPPOSITE ENDS IN A CURBED LANDSCAPE ISLAND
 - 6.2. JOINTS WHEN TIED TO CONCRETE PAVEMENT:
 - 6.2.1. PLACE CONTRACTION JOINTS OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN PAVEMENT
 - 6.2.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
 - 6.2.3. PLACE 1" EXPANSION JOINT OPPOSITE ALL TRANSVERSE EXPANSION JOINTS IN PAVEMENT
 - 6.2.4. CURB AND GUTTER AND CONCRETE SHALL BE TIED TOGETHER SIMILAR TO A LONGITUDINAL LANE TIE JOINT (MDOT B1 JOINT)
 - 6.3. IN BETWEEN POURS OF PROPOSED CONCRETE CURBING (CONSTRUCTION JOINT):
 - 6.3.1. CARRY THE REBAR CONTINUOUSLY BETWEEN POURS
 - 6.3.2. IF THE REBAR IS NOT LONG ENOUGH TO CARRY CONTINUOUSLY, THEN TIE TWO PIECES OF REBAR PER THE LATEST MDOT SPECIFICATIONS
7. CONCRETE SIDEWALK JOINTING -- UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION
 - 7.1. PLACE TRANSVERSE CONTRACTION JOINTS EQUAL TO THE WIDTH OF THE WALK WHEN WIDTH IS LESS THAN 8'
 - 7.2. PLACE TRANSVERSE AND LONGITUDINAL CONTRACTION JOINTS EQUAL TO 1/2 THE WIDTH OF THE WALK WHEN WIDTH IS EQUAL TO OR GREATER THAN 8'
 - 7.3. PLACE 1" EXPANSION JOINT WHERE ABUTTING SIDEWALK RAMP AND/OR RADIUS IN INTERSECTION
 - 7.4. PLACE TRANSVERSE 1/2" EXPANSION JOINT AT MAXIMUM OF 100' SPACING
 - 7.5. PLACE 1/2" EXPANSION JOINT WHEN ABUTTING A FIXED STRUCTURE, OTHER PAVEMENT (CONCRETE PAVEMENT AND DRIVE APPROACHES), UTILITY STRUCTURES, LIGHT POLE BASES AND COLUMNS

GENERAL GRADING AND EARTHWORK NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE SITE.
2. ALL GRADES ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
3. THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
4. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF THE AUTHORIZED PUBLIC AGENCY OF JURISDICTION. AN EROSION CONTROL PERMIT MUST BE SECURED FROM THE CITY OF TROY PRIOR TO CONSTRUCTION.
5. ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION AND REPORT.
6. REFER TO SOIL EROSION CONTROL PLAN FOR ADDITIONAL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND NOTES.
7. THE DETENTION BASIN SIDE SLOPES AND ALL SLOPE EXCEEDING 1:5 MUST BE STABILIZED BY SODDING OR BY PLACING A MULCH BLANKET PEGGED IN PLACE OVER SEED.
8. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLANS. PROVIDE A MINIMUM OF 3" OF TOPSOIL IN THESE AREAS UNLESS OTHERWISE NOTED.
9. THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL, IN THE OPINION OF THE THIRD PARTY TESTING COMPANY, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.
10. ON-SITE FILL CAN BE USED IF THE SPECIFIED COMPACTION REQUIREMENTS CAN BE ACHIEVED. IF ON-SITE SOIL IS USED, IT SHOULD BE CLEAN AND FREE OF FROZEN SOIL, ORGANICS, OR OTHER DELETERIOUS MATERIALS.
11. THE FINAL SUBGRADE/EXISTING AGGREGATE BASE SHOULD BE THOROUGHLY PROOFROLLED USING A FULLY LOADED TANDEM AXLE TRUCK OR FRONT END LOADER UNDER THE OBSERVATION OF A GEOTECHNICAL/PAVEMENT ENGINEER. LOOSE OR YIELDING AREAS THAT CANNOT BE MECHANICALLY STABILIZED SHOULD BE REINFORCED USING GEOTEXTILES OR REMOVED AND REPLACED WITH ENGINEERED FILL OR AS DICTATED BY FIELD CONDITIONS.
12. SUBGRADE UNDERCUTTING, INCLUDING BACKFILLING SHALL BE PERFORMED TO REPLACE MATERIALS SUSCEPTIBLE TO FROST HEAVING AND UNSTABLE SOIL CONDITIONS. ANY EXCAVATIONS THAT MAY BE REQUIRED BELOW THE TOPSOIL IN FILL AREAS OR BELOW PROPOSED SUBGRADE IN CUT AREAS WILL BE CLASSIFIED AS SUBGRADE UNDERCUTTING.
13. SUBGRADE UNDERCUTTING SHALL BE PERFORMED WHERE NECESSARY AND THE EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ANY SUBGRADE UNDERCUTTING SHALL BE BACKFILLED AS RECOMMENDED IN THE GEOTECHNICAL ENGINEERING REPORT FOR THE PROJECT.
14. ANY SUBGRADE WATERING REQUIRED TO ACHIEVE REQUIRED DENSITY SHALL BE CONSIDERED INCIDENTAL TO THE JOB.



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REGISTRATION SEAL



CONSULTANT



PROJECT TITLE

**New Smith Middle
School
Bld Package No. 03**

**Troy School District
Troy, Michigan**

DRAWING TITLE

NOTES

ISSUE DATES

DATE	DESCRIPTION
01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN J.W

CHECKED TD

APPROVED TD

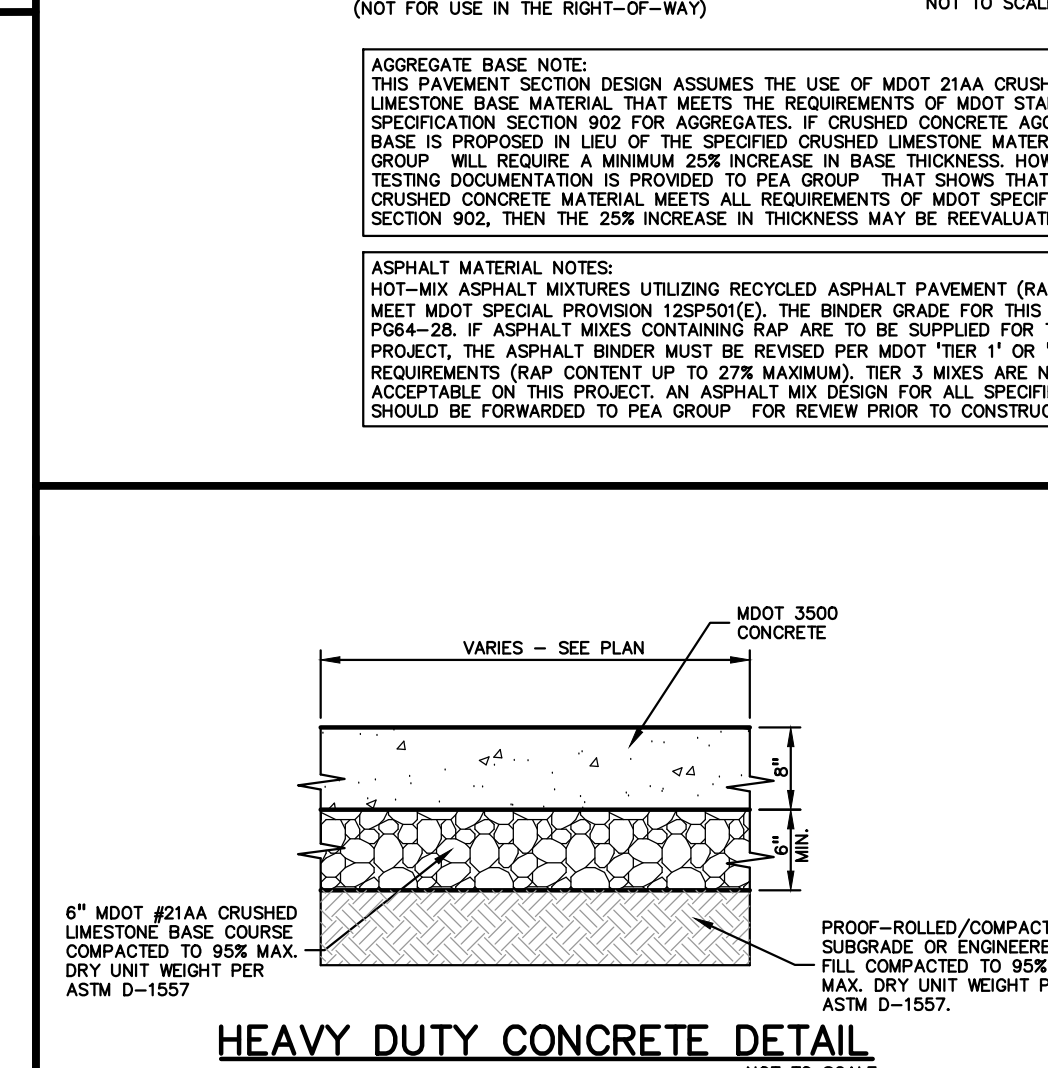
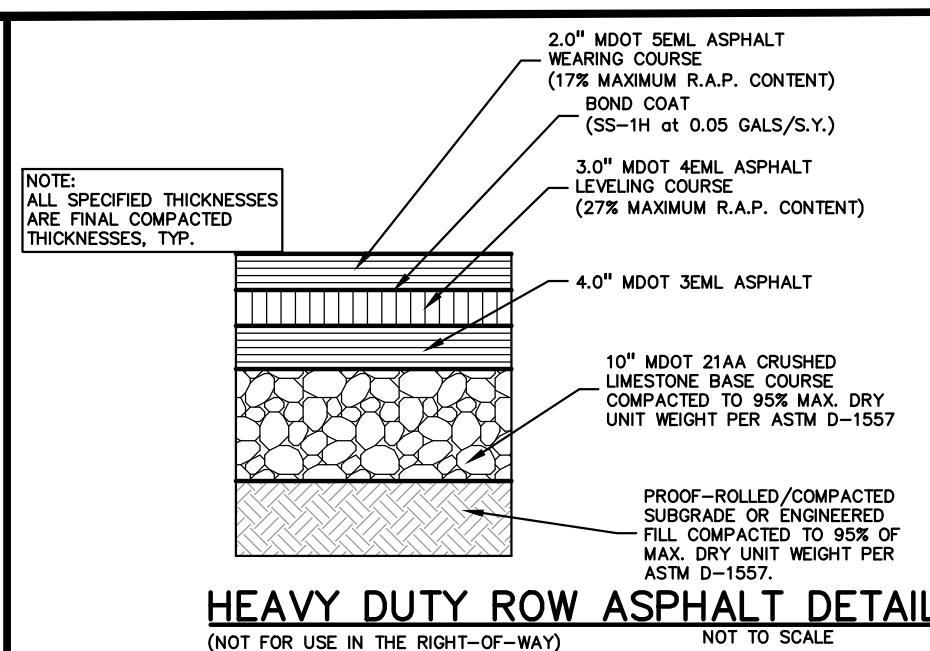
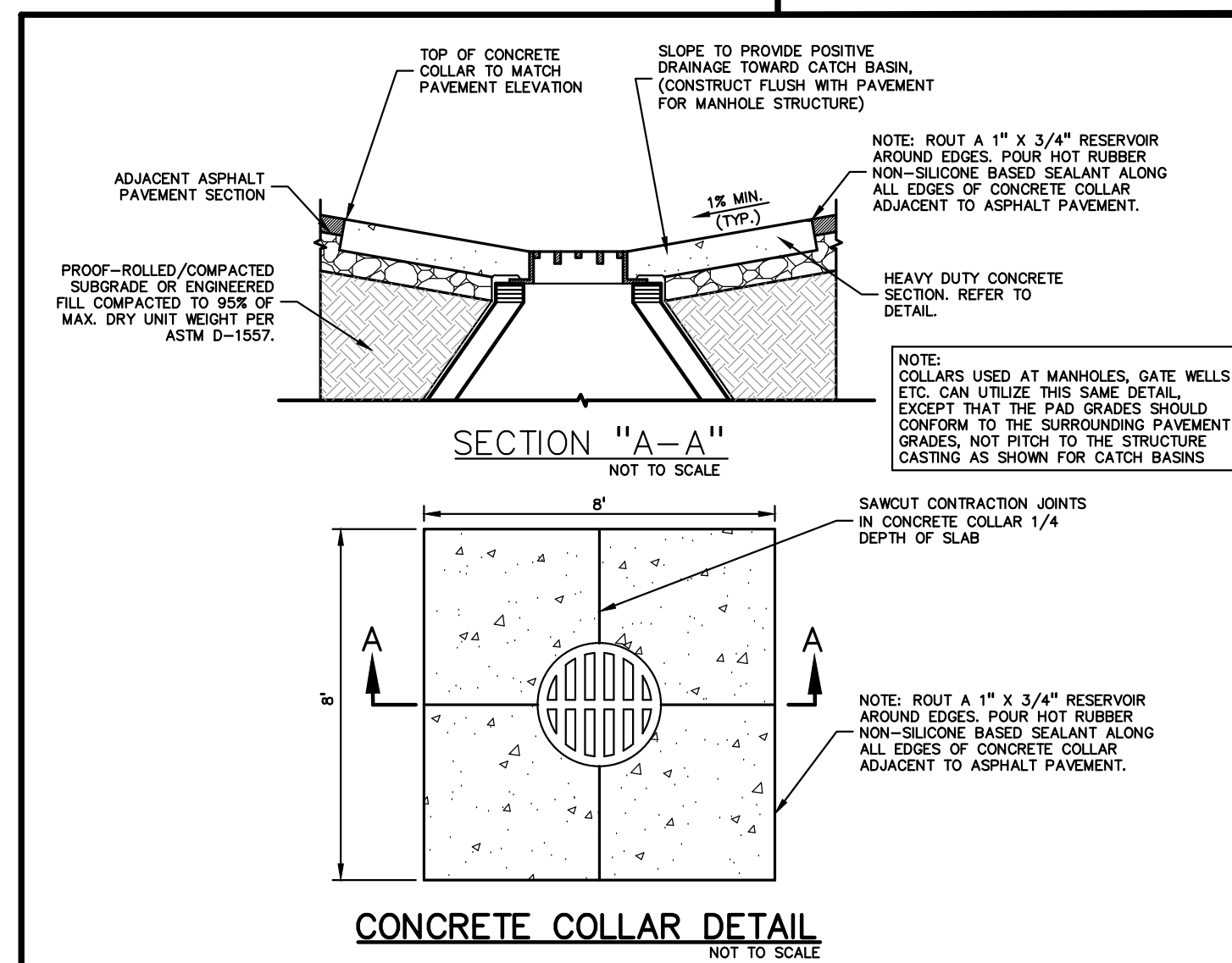
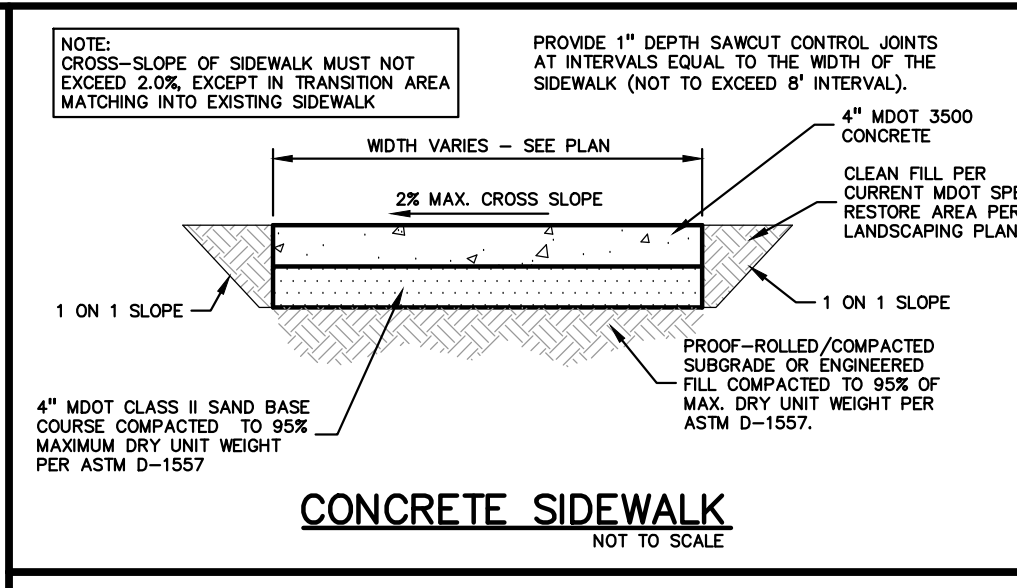
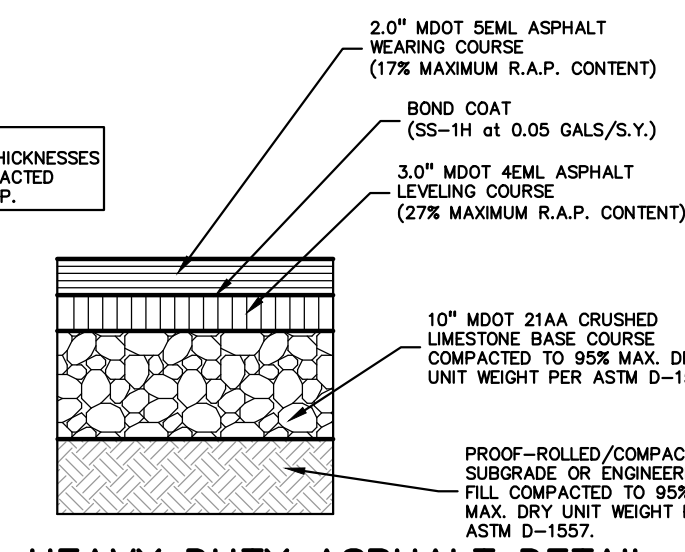
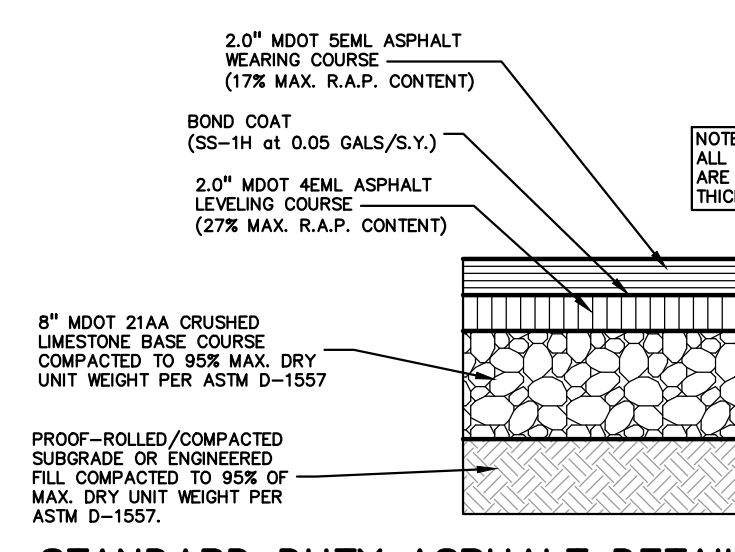
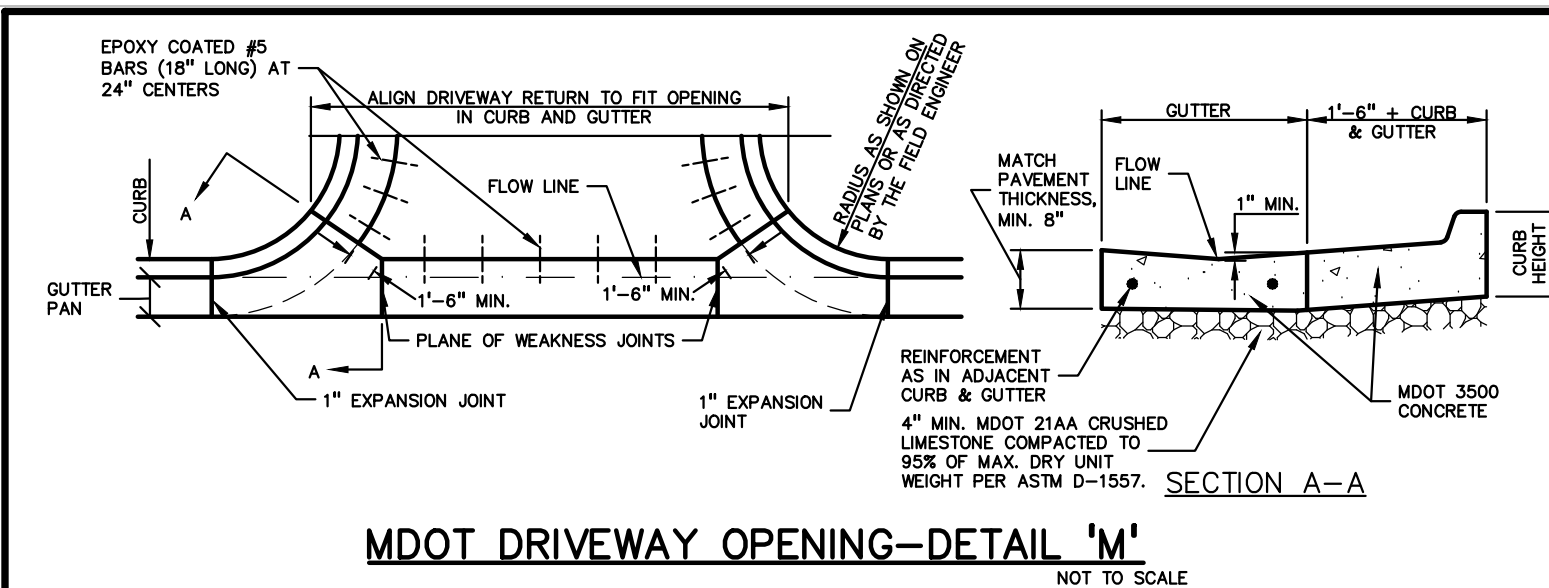
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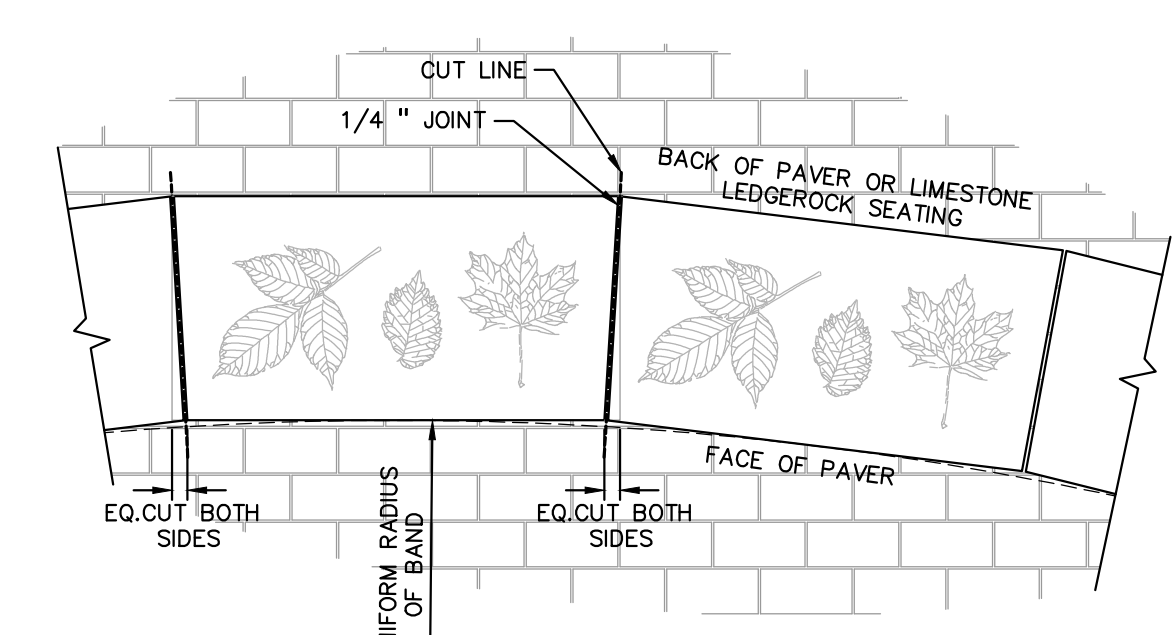
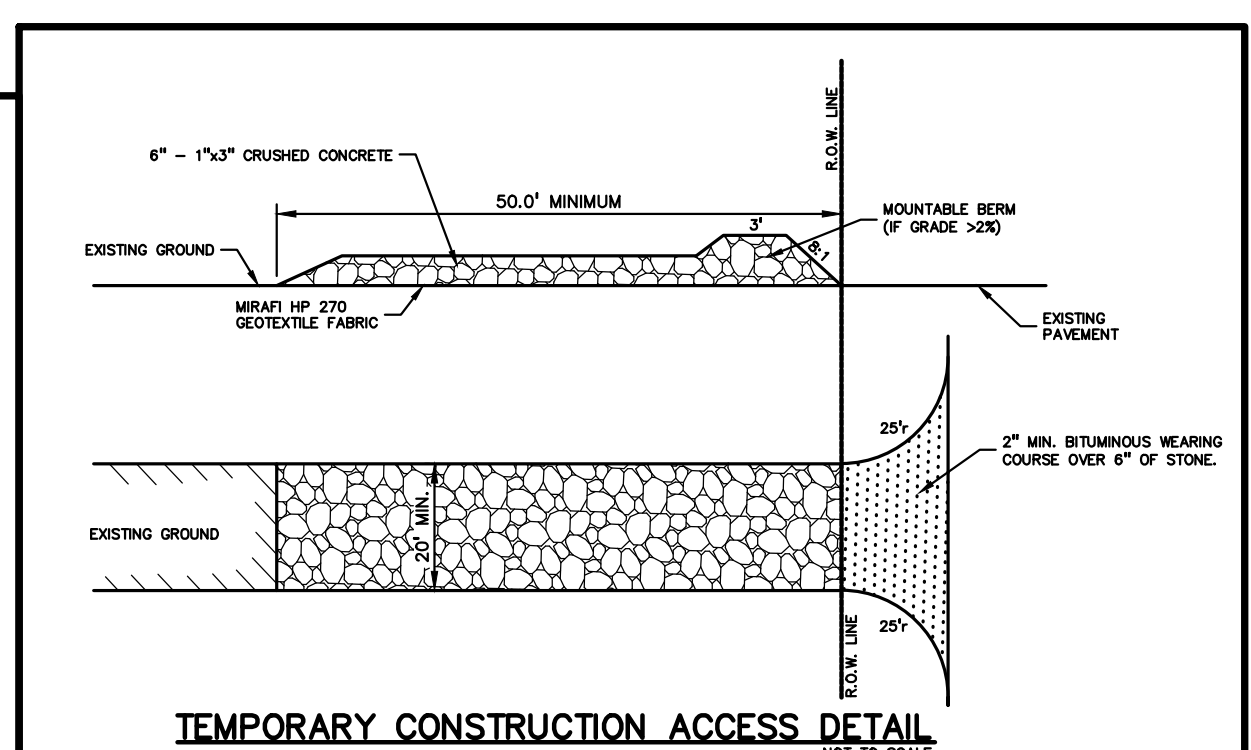
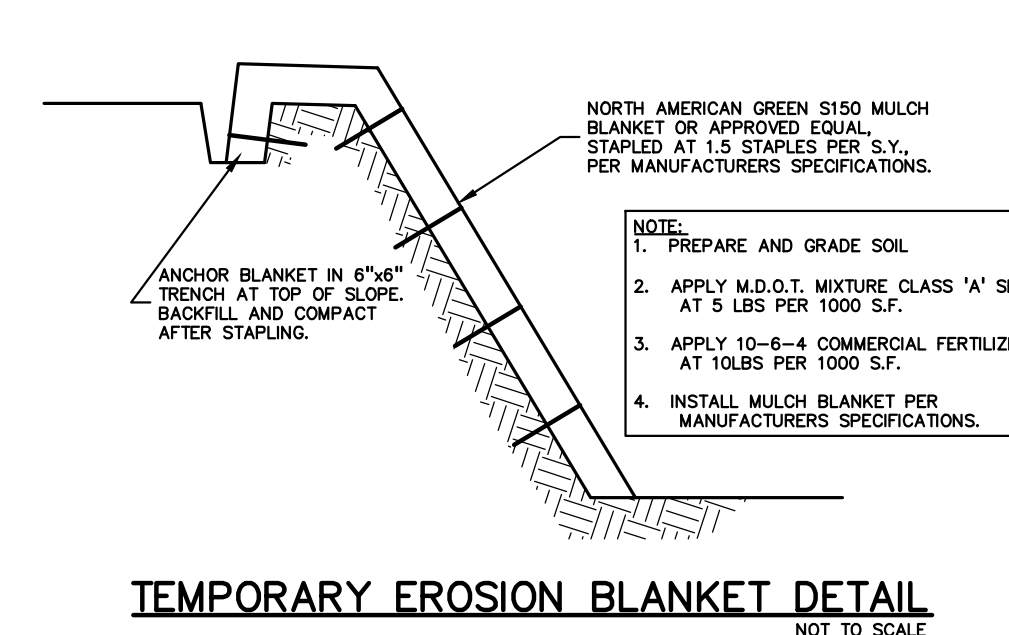
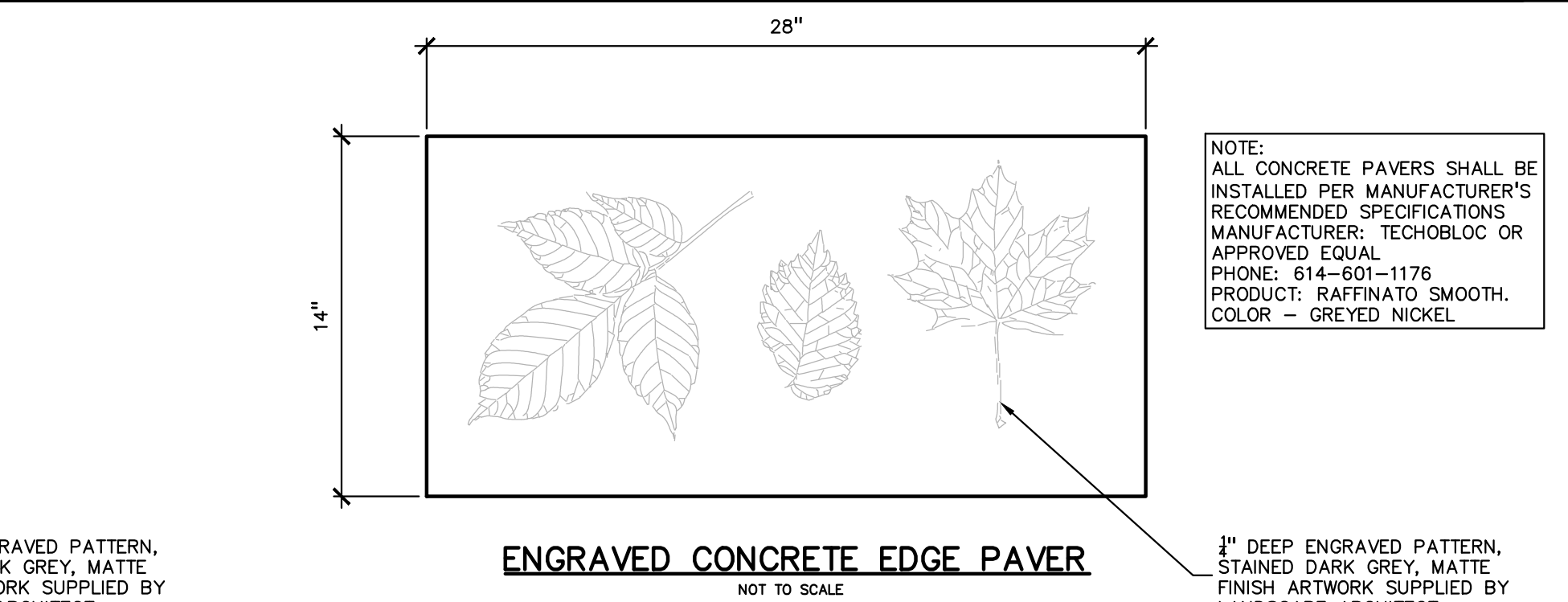
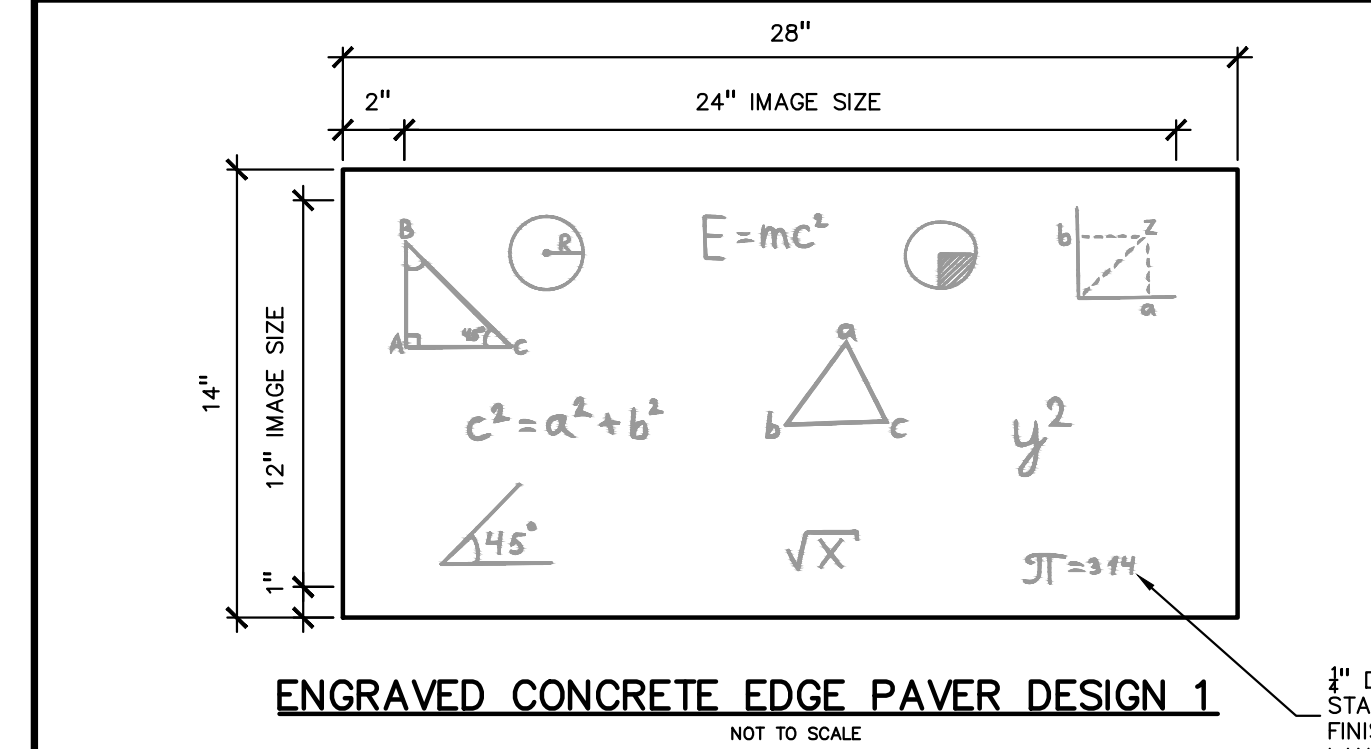
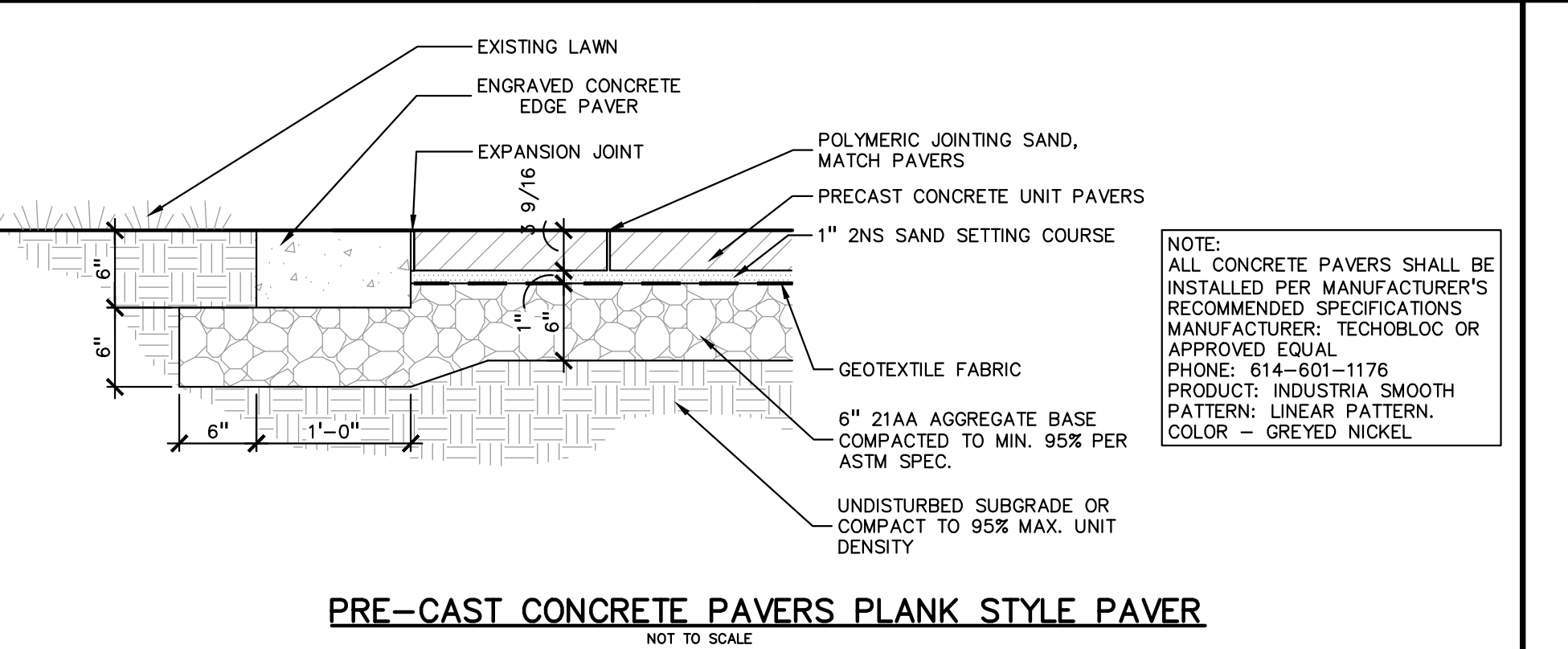
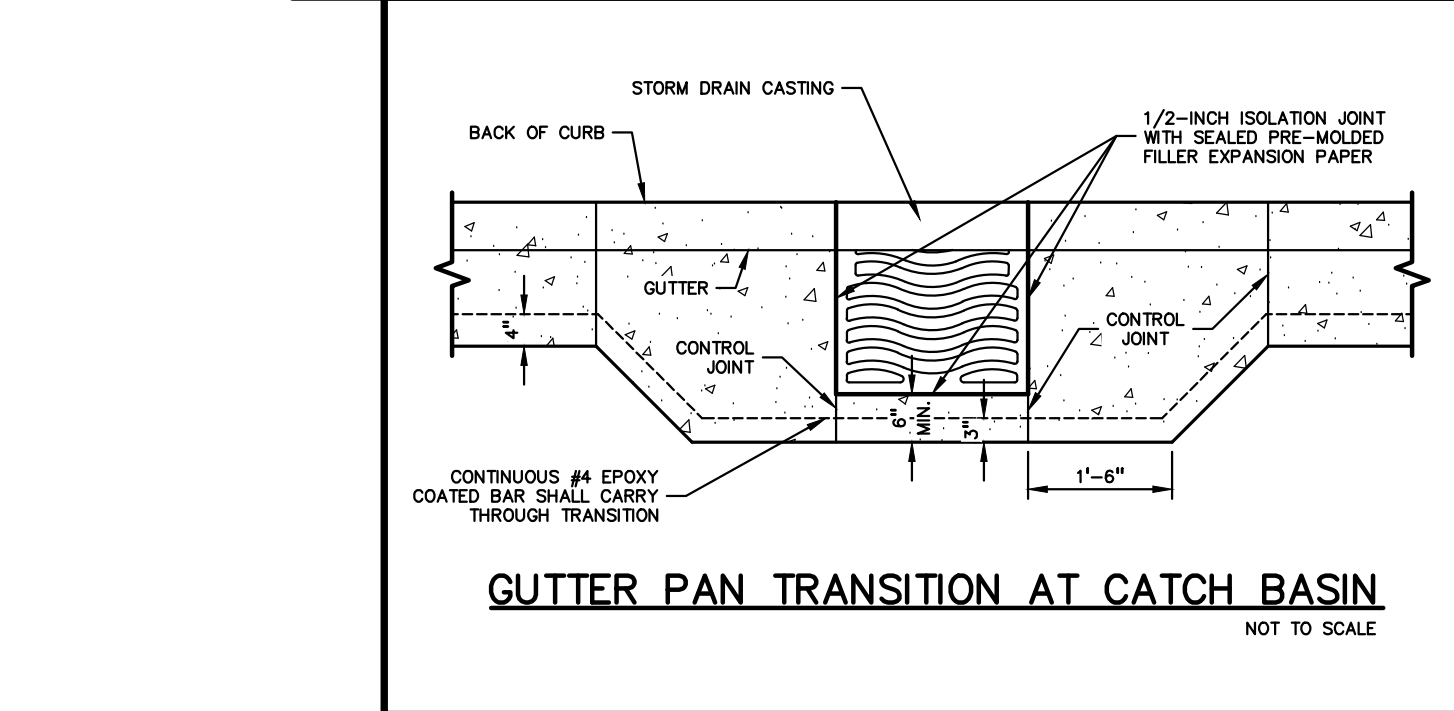
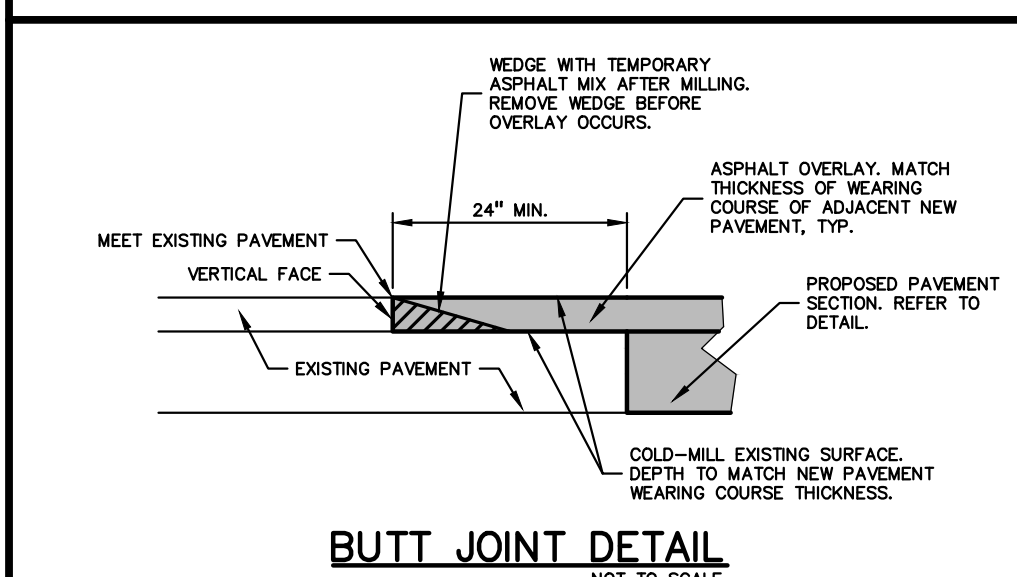
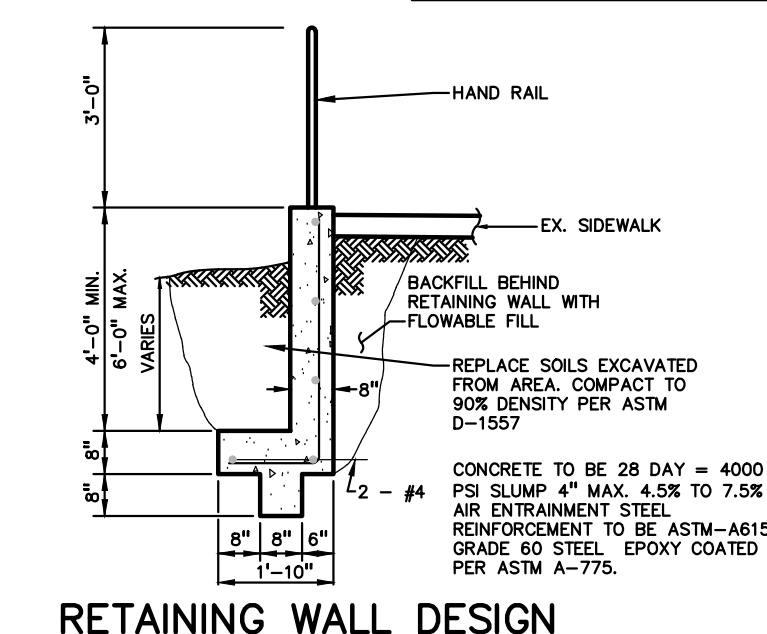
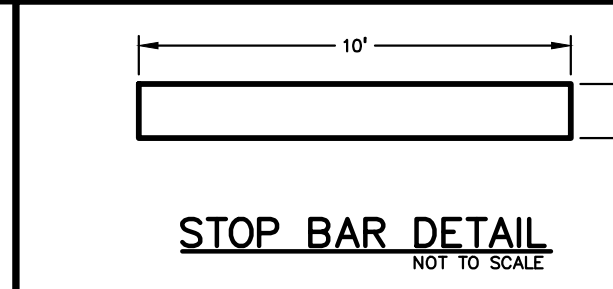
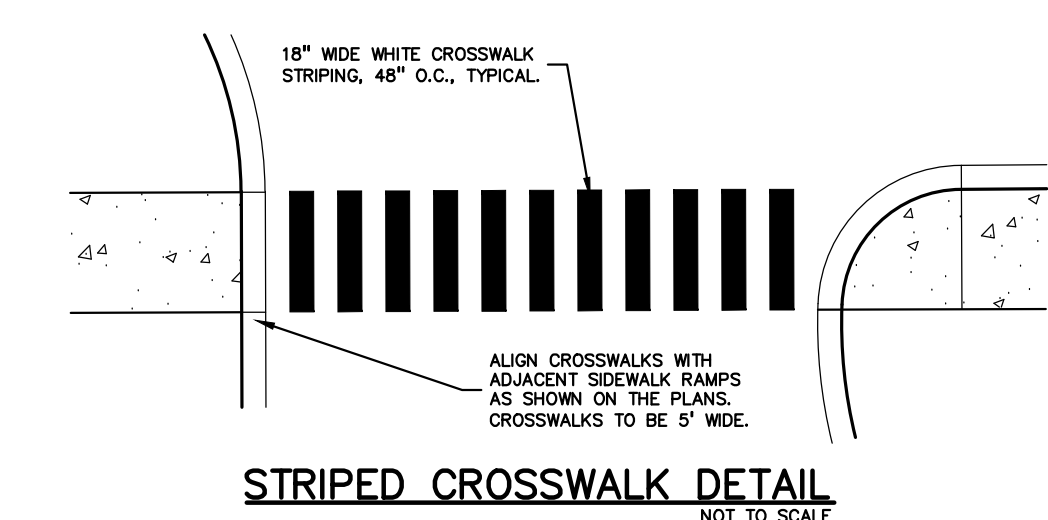
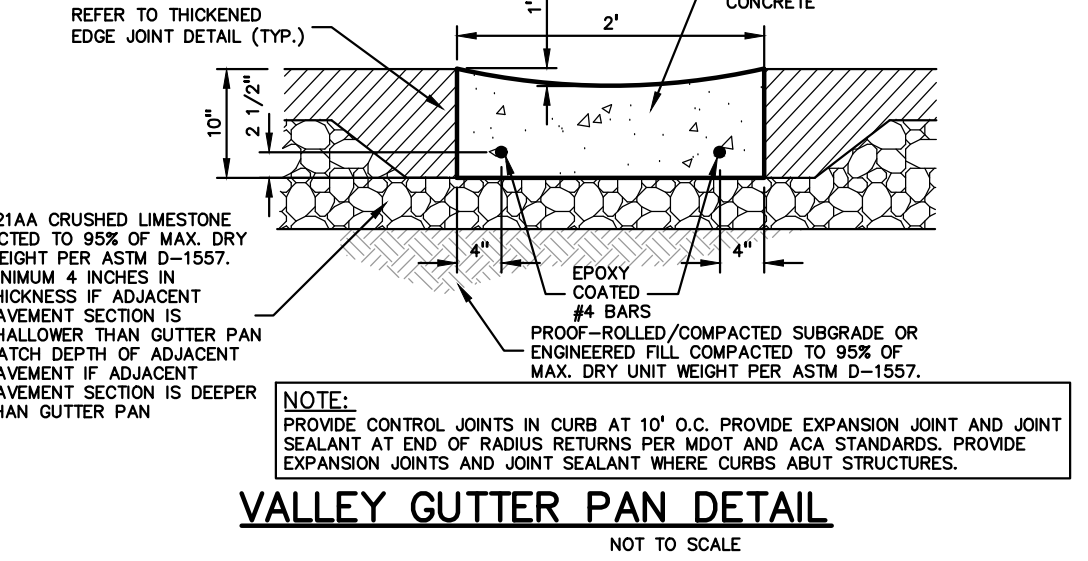
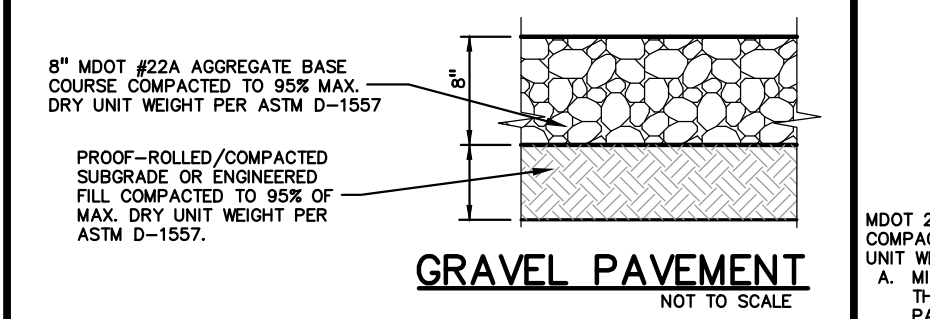
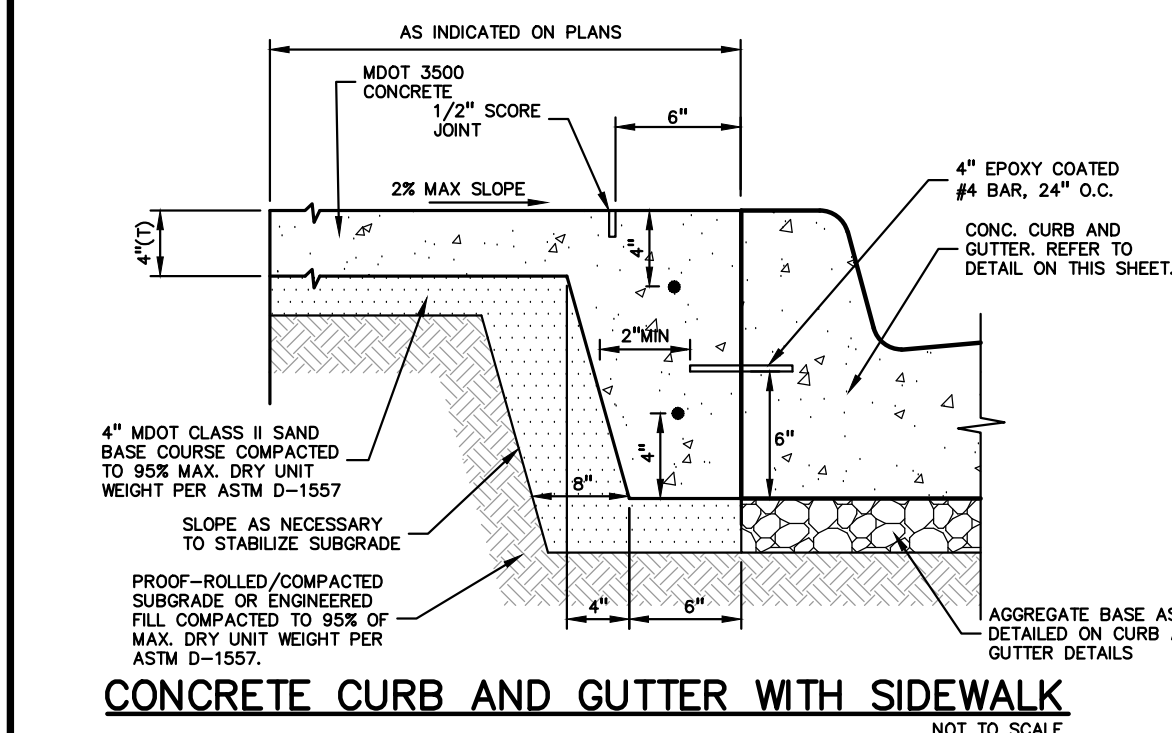
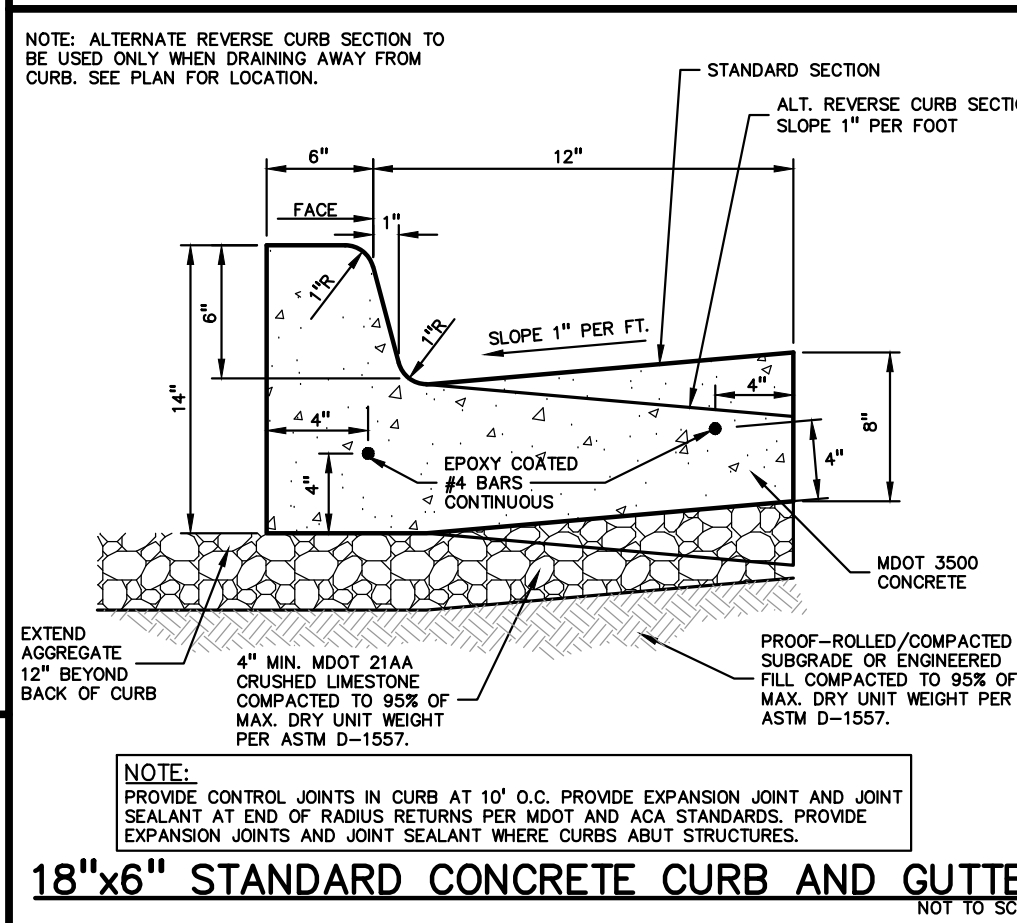
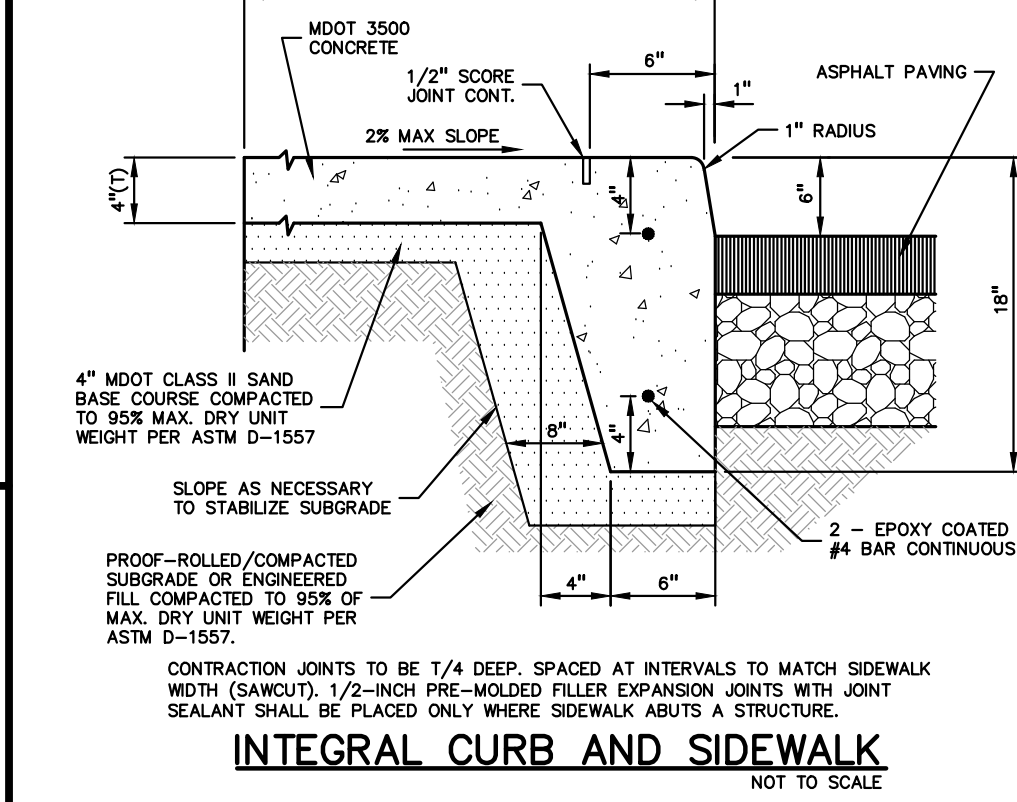
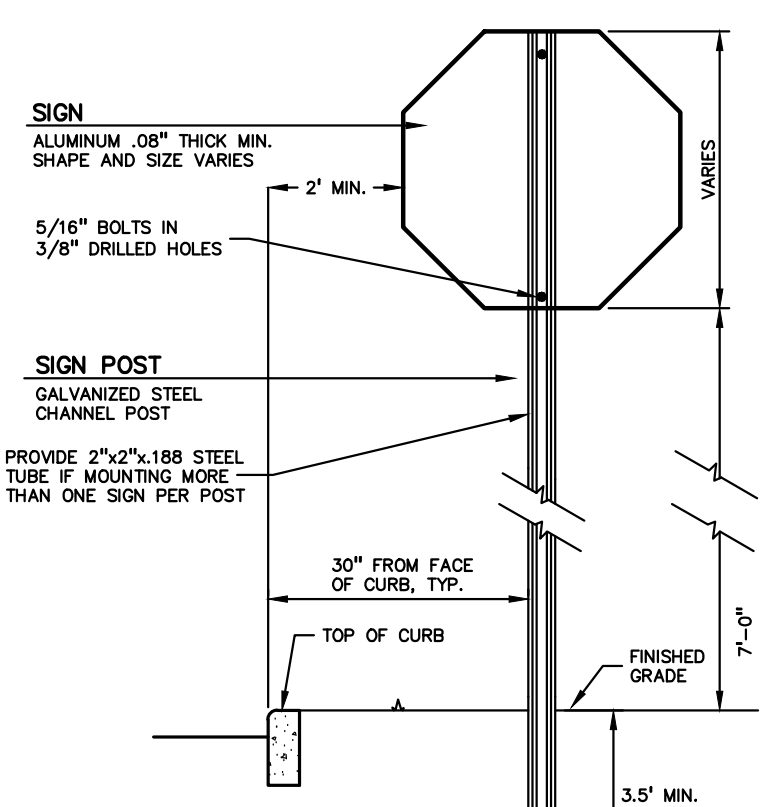
CITY OF TROY PROJECT NO.: 24.910.3

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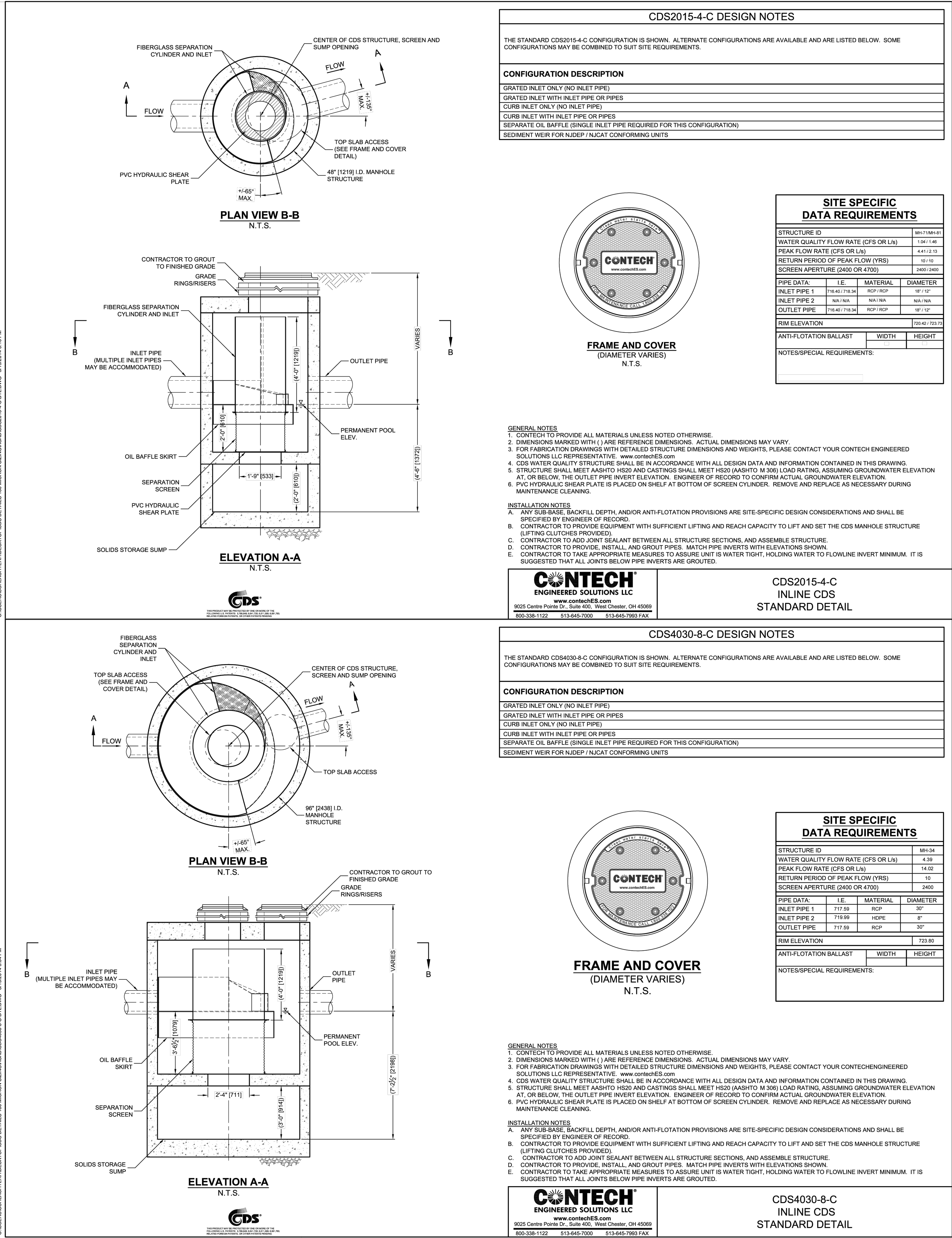
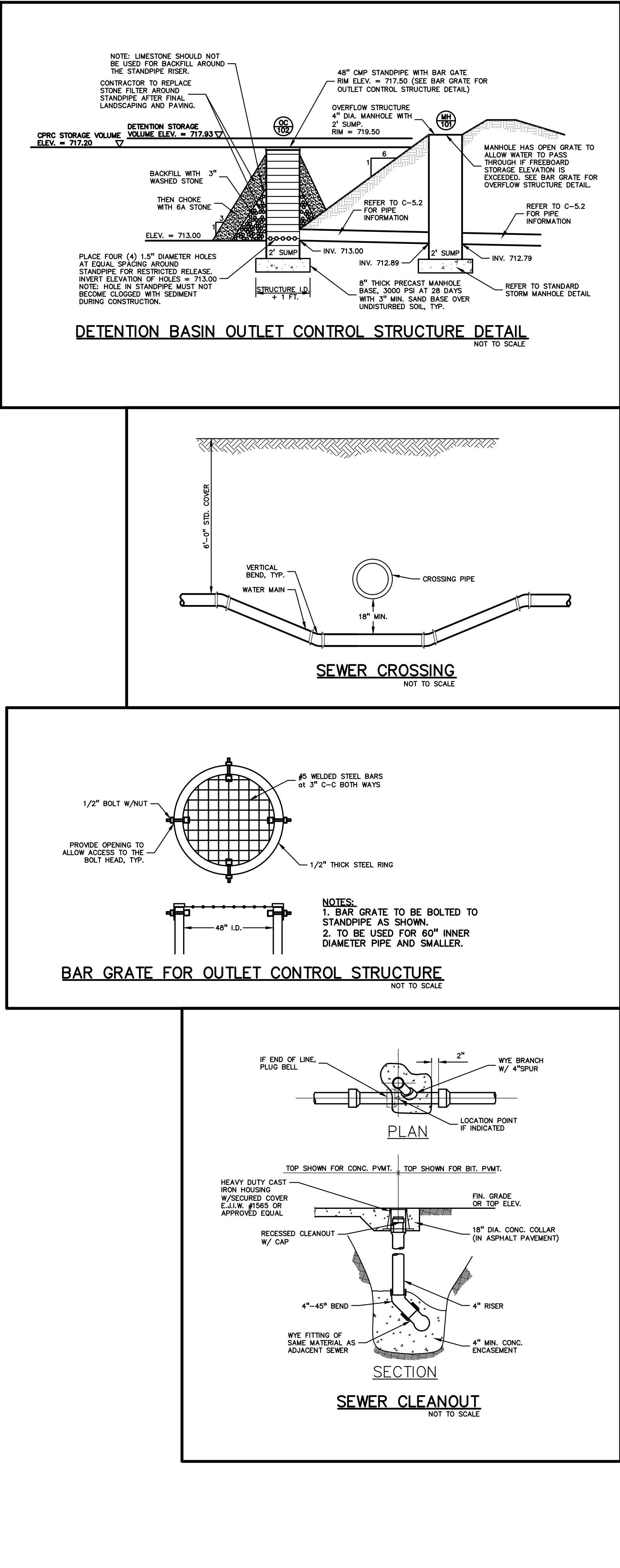


ASPHALT MIX DESIGN CHART				
COMMERCIAL ADT 0-300	COMMERCIAL ADT 301-1000	COMMERCIAL ADT 1001-3400	COMMERCIAL ADT 3401-5400	APPLICATION RATE (LB/70 ²) MINIMUM - MAXIMUM
4EL	4EML	4EMH	4EMH	220-275
5EL	5EML	5EMH	5MA OR 5EMH	165-220
PG 58-28	PG 64-28	PG 64-28	PG 70-28P	



01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RCOC SUBMITTAL
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07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:
DRAWN	JW
CHECKED	TD
APPROVED	TD

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Jan 14, 2025 - 11:33am



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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

New Smith Middle School Bld Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE

UTILITY DETAILS

ISSUE DATES

DATE	ISSUED FOR:
01-14-2025	BULLETIN 9
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DATE ISSUED FOR:

DRAWN JH

CHECKED TD

APPROVED TD

PROJECT NO.

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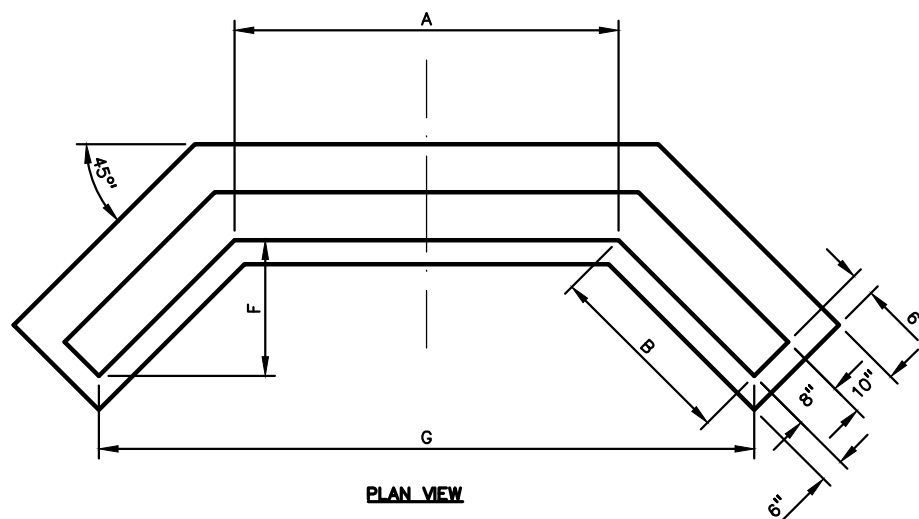
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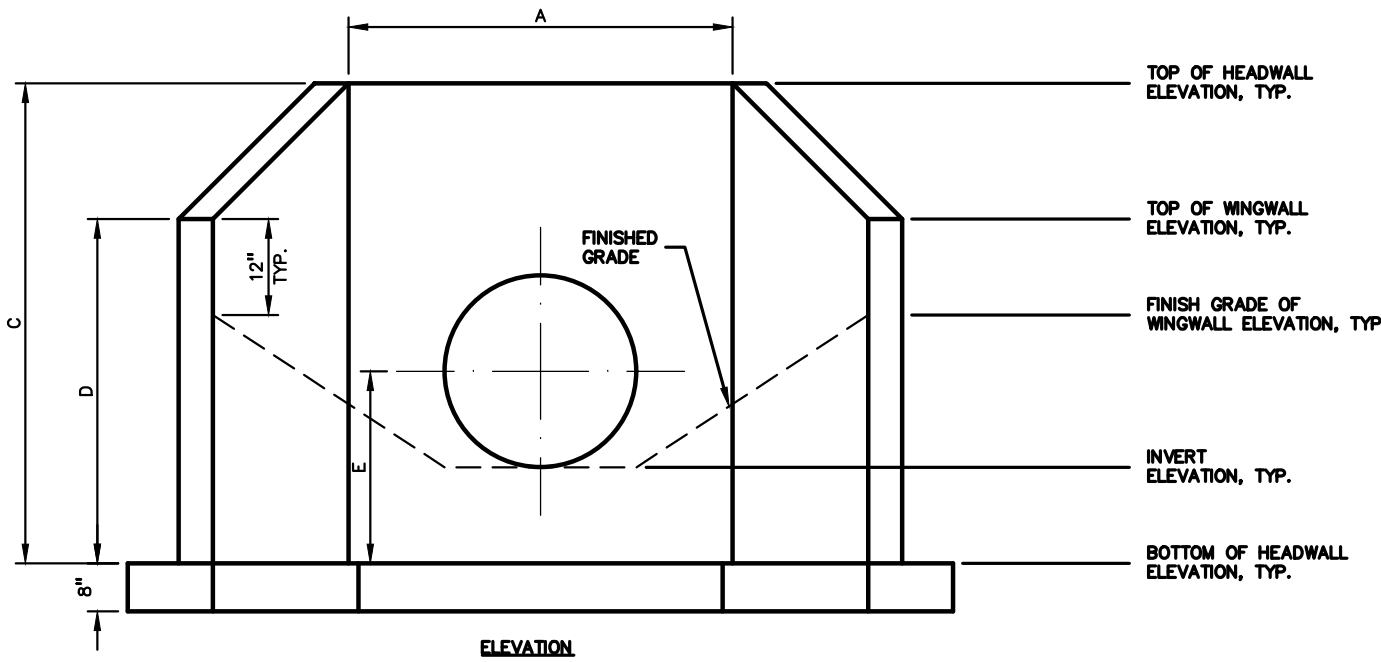
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Jan 14, 2025 - 11:33am

HEADWALL	PIPE DIAMETER	INVERT ELEV.	CENTER OF PIPE ELEV.	BOTTOM OF WALL ELEV.	TOP OF WALL ELEV.	TOP OF WING WALL ELEV.	FINISH GRADE AT WING WALL ELEV.
110	36	732.00	733.50	729.50	736.00	734.50	733.50
112	36	734.59	736.09	732.09	738.59	737.09	736.09
113	30	737.90	739.15	735.40	741.40	739.90	738.90
114	30	737.90	739.15	735.40	741.40	739.90	738.90
115	30	736.69	737.94	734.19	740.19	738.69	737.69
116	30	736.69	738.24	734.49	740.49	738.99	737.99



DIMENSION SCHEDULE							
PIPE DIAM	A	B	C	D	E	F	G
12	36	30	54	40	36	22	78
15	48	30	60	45	37.5	22	92
18	48	30	60	45	39	22	92
24	60	36	64	48	42	26	112
30	72	36	72	54	45	26	124
36	78	48	78	60	48	35	144
48	84	48	90	66	54	35	150



- NOTES:
1. ALL EXPOSED EDGES TO HAVE 1" REVEALED CORNERS.
 2. FINISH GRADE TO BE DETERMINED BY CONTRACTOR IN FIELD.
 3. REINFORCING: #4 BARS AT 12" O.C.E.W.
 4. CONCRETE: 4,000 PSI AT 28 DAYS.

WINGWALL WITH FOOTING
NOT TO SCALE

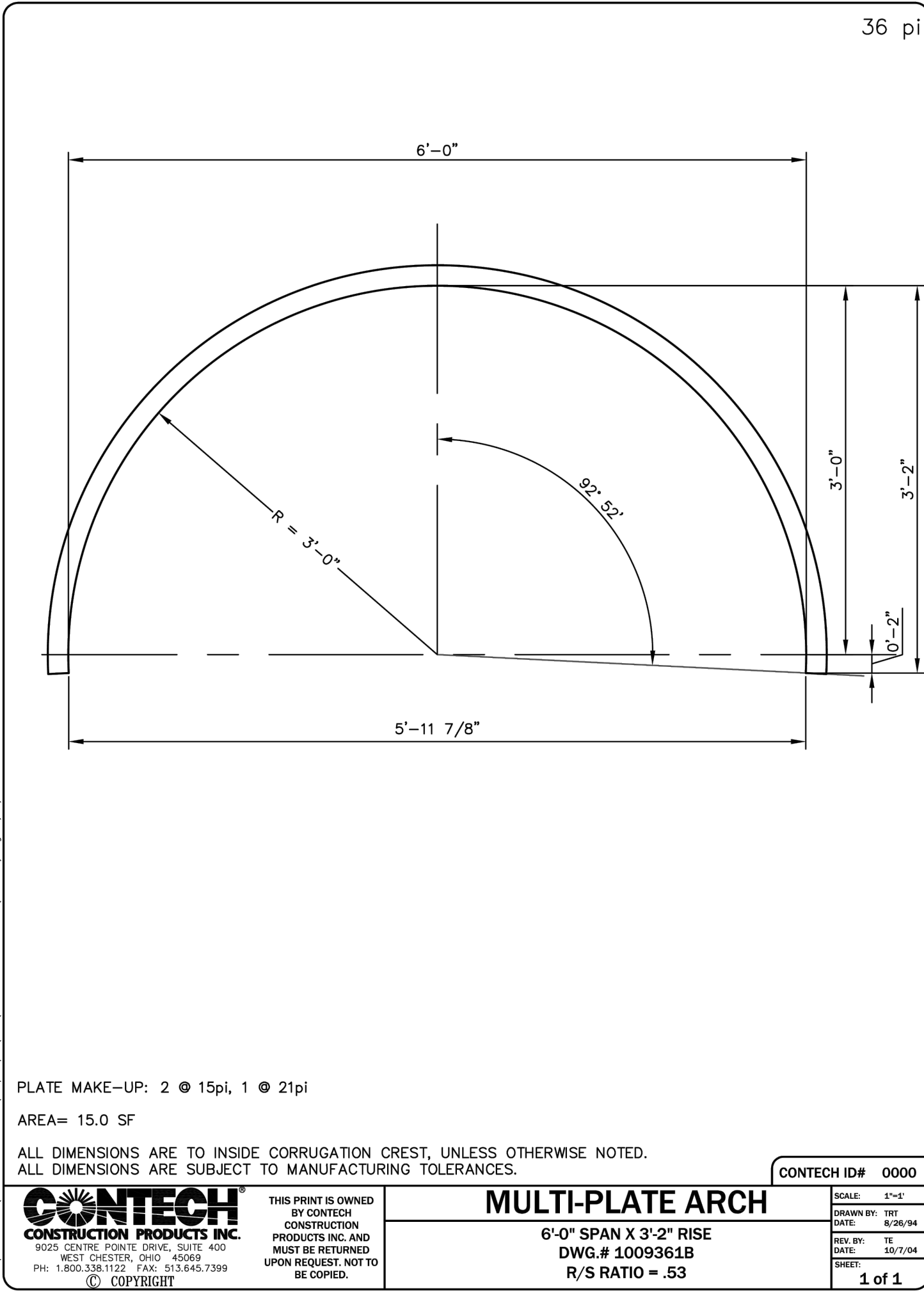
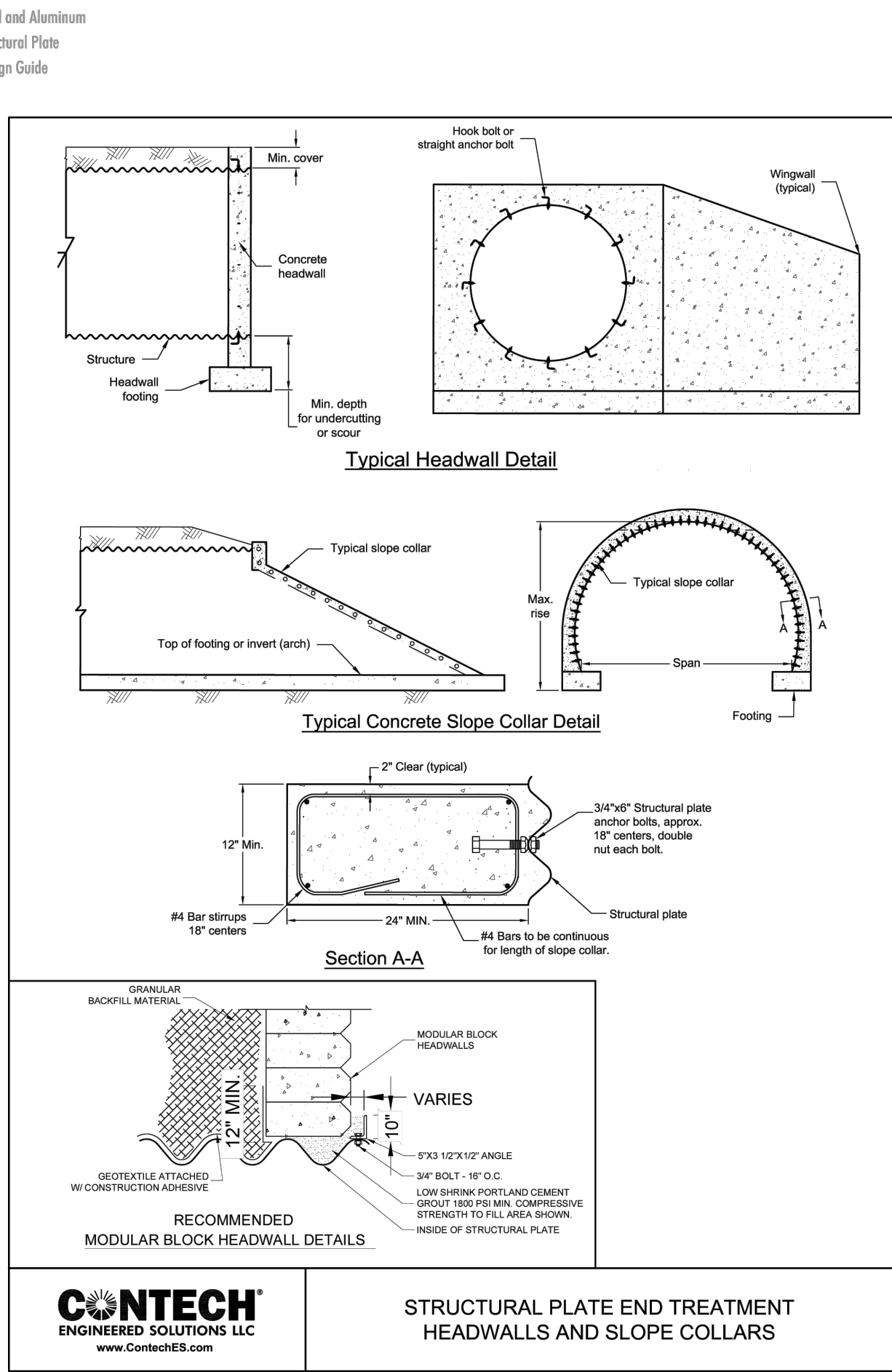


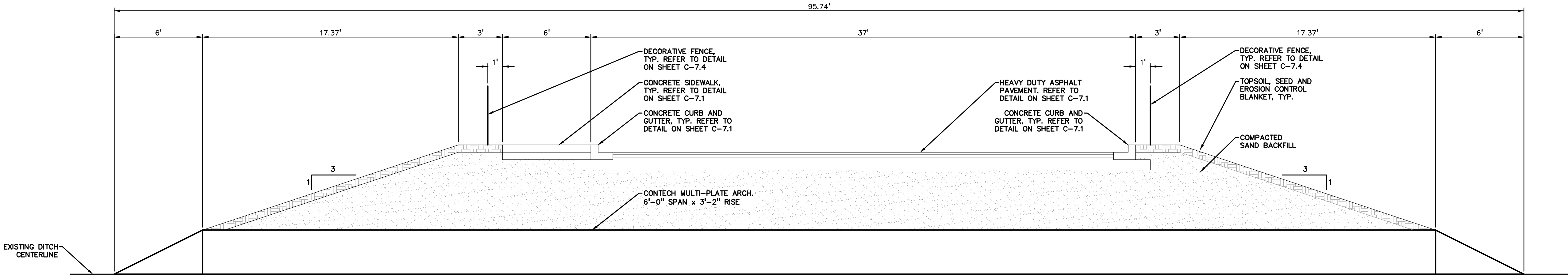
PLATE MAKE-UP: 2 @ 15pi, 1 @ 21pi
AREA= 15.0 SF
ALL DIMENSIONS ARE TO INSIDE CORRUGATION CREST, UNLESS OTHERWISE NOTED.
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
CONTECH ID# 0000
CONTECH CONSTRUCTION PRODUCTS INC.
1000 LEXINGTON AVENUE, SUITE 1000
WEST CHESTER, OHIO 45386
PH: (513) 331-1122 FAX: (513) 331-1123
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MULTI-PLATE ARCH
6'-0" SPAN X 3'-2" RISE
DWG # 10093618
R/S RATIO = .53
1 of 1



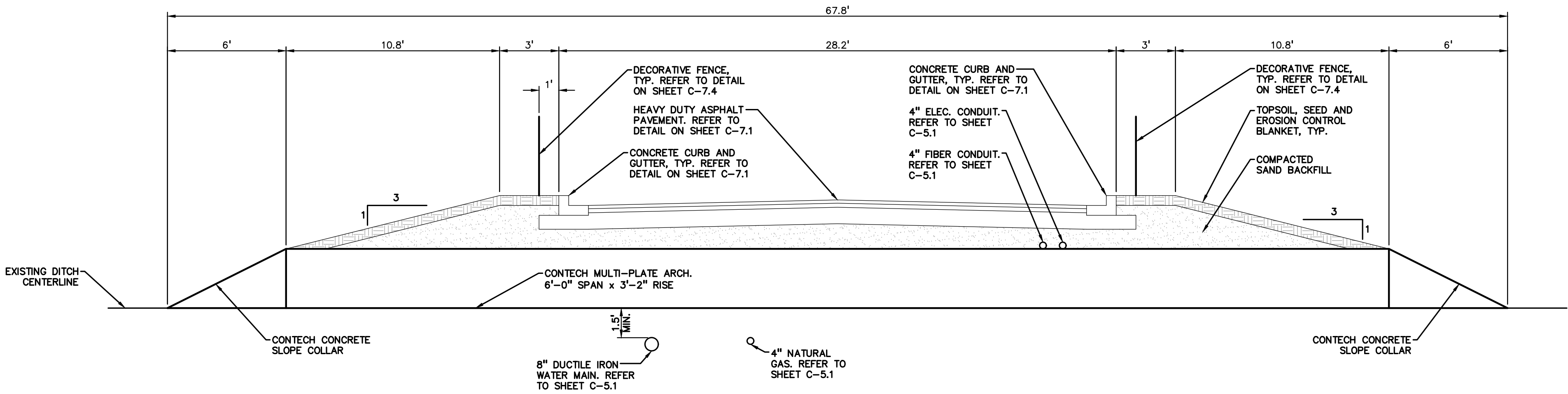
Steel and Aluminum
Structural Plate
Design Guide

Typical Design Steps

24



NORTH ENTRY DRIVE CULVERT SECTION
SCALE: 1/4" = 1'



SOUTH ENTRY DRIVE CULVERT SECTION
SCALE: 1/4" = 1'



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REGISTRATION SEAL



CONSULTANT



PROJECT TITLE
New Smith Middle School Bld Package No. 03

Troy School District
Troy, Michigan

DRAWING TITLE
CULVERT DETAILS

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
09-09-2024	RFI 3 SANITARY PLUMBING UG INVERT
07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN J.W

CHECKED TD

APPROVED TD

PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-7.3

REGISTRATION SEAL



CONSULTANT

PEA
GROUP

PROJECT TITLE

**New Smith Middle
School
Bld Package No. 03**

**Troy School District
Troy, Michigan**

DRAWING TITLE

SITE DETAILS

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
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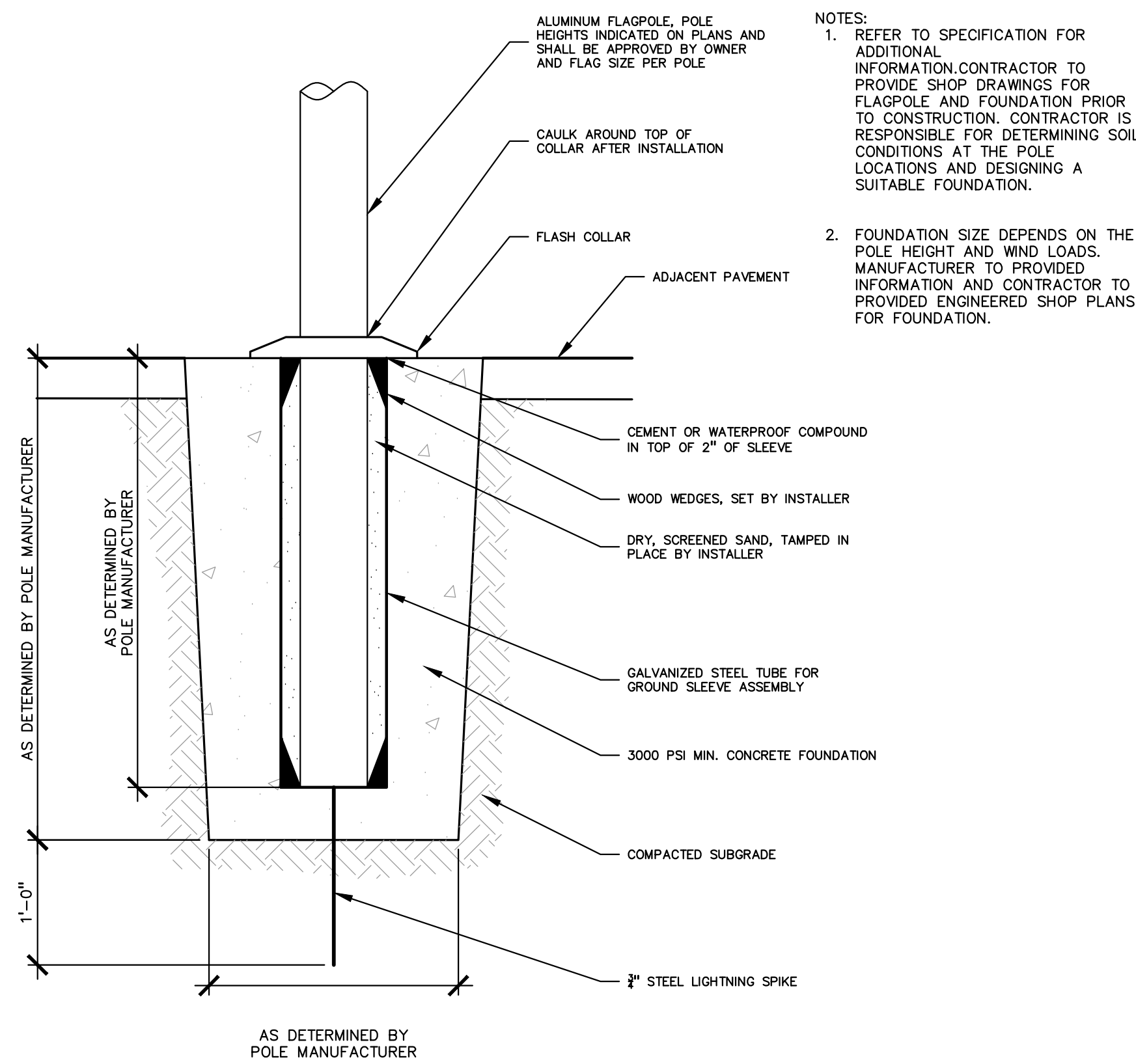
PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

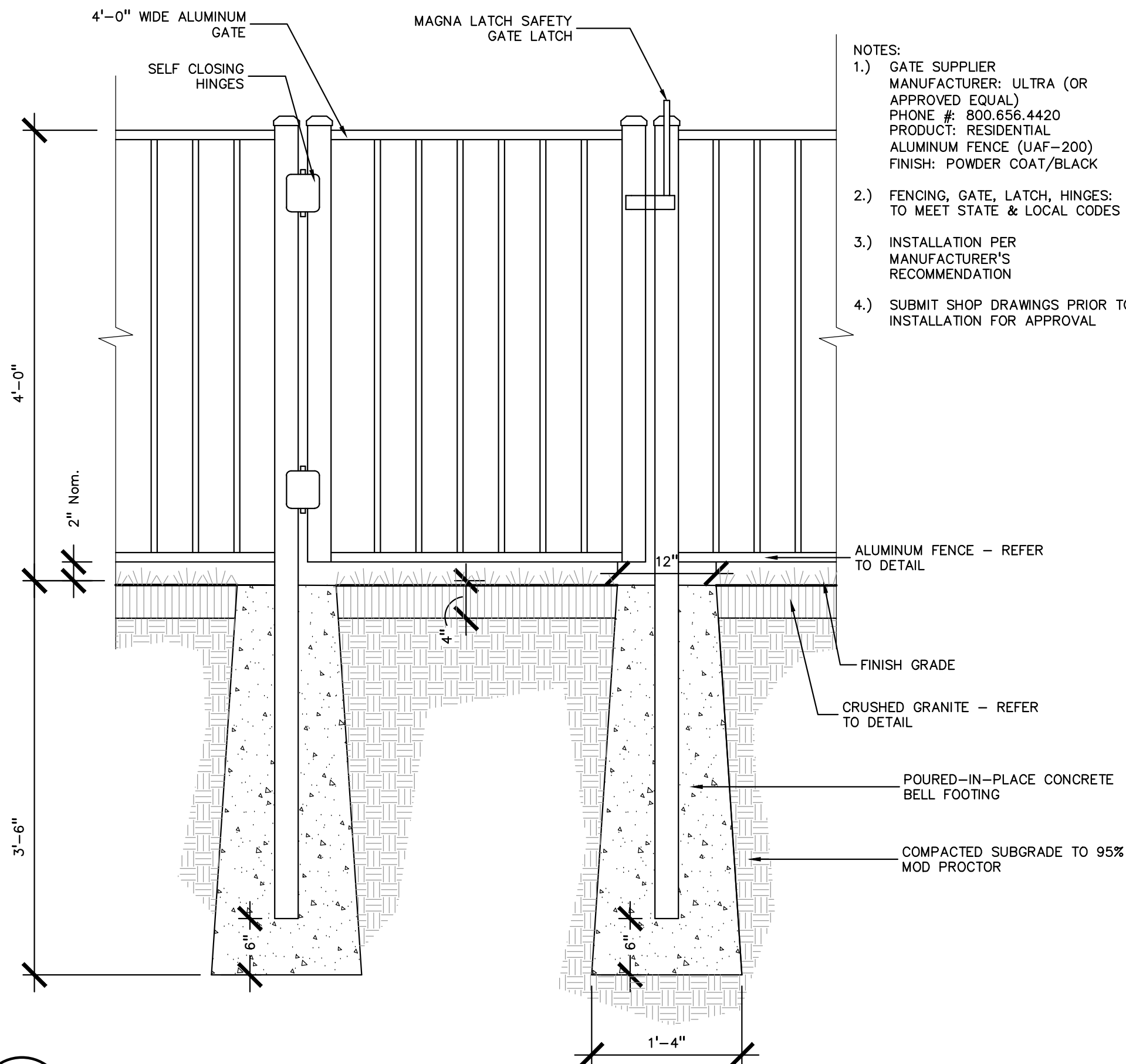
DRAWING NO.

C-7.4



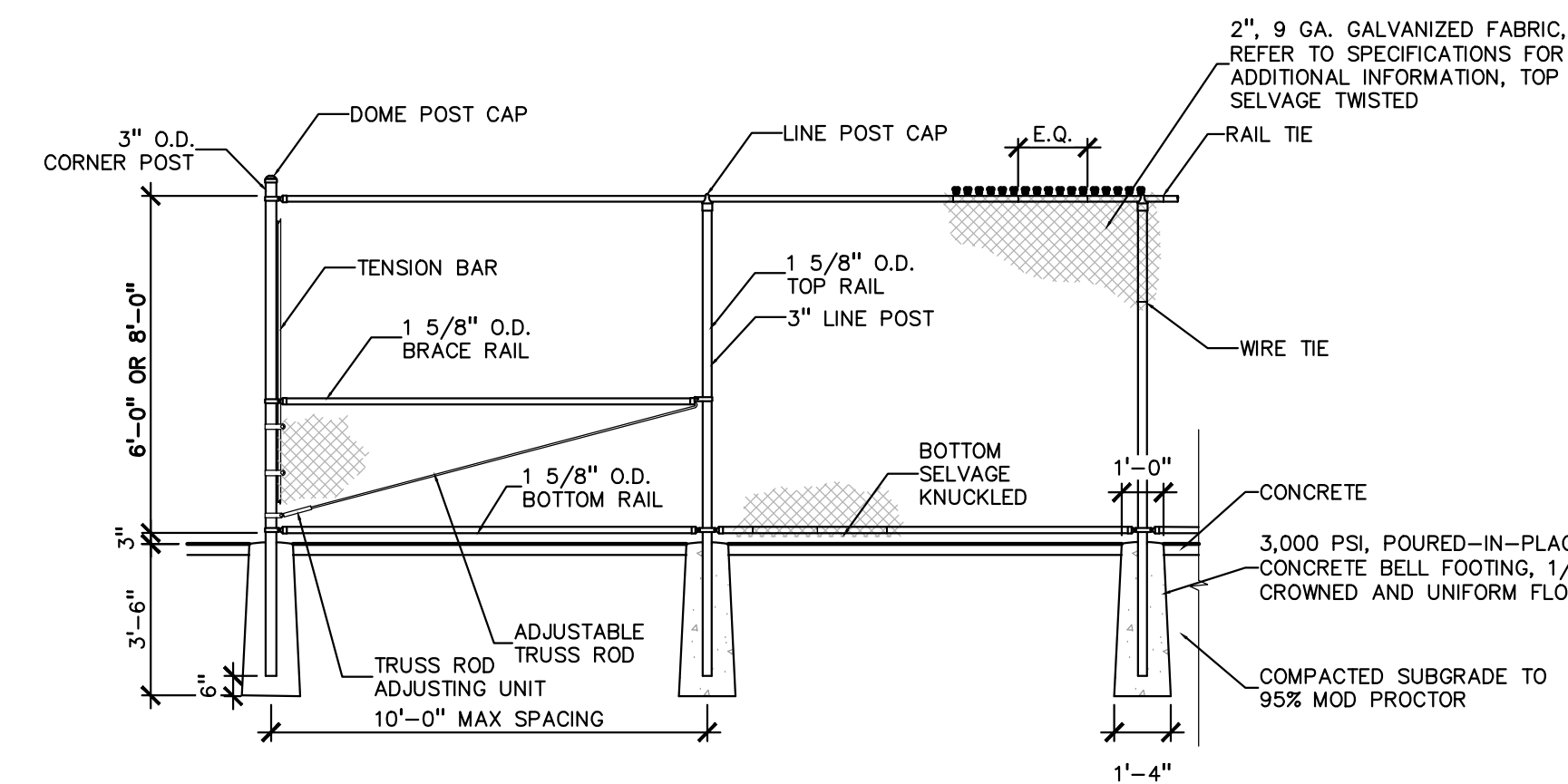
4 FLAGPOLE BASE DETAIL

SCALE: 1 1/2" = 1'-0"



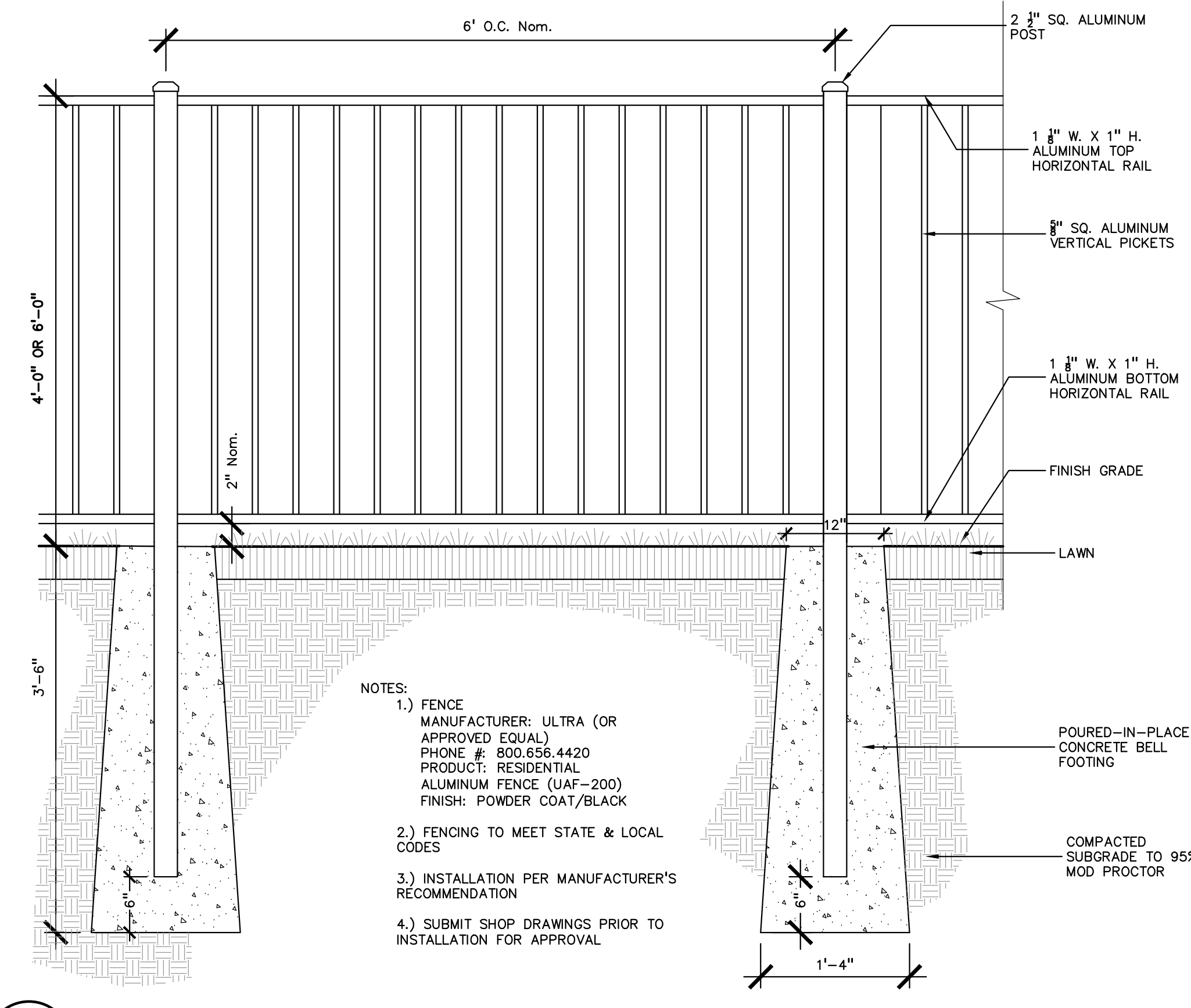
3 ALUMINUM GATE DETAIL

SCALE: 1" = 1'-0"



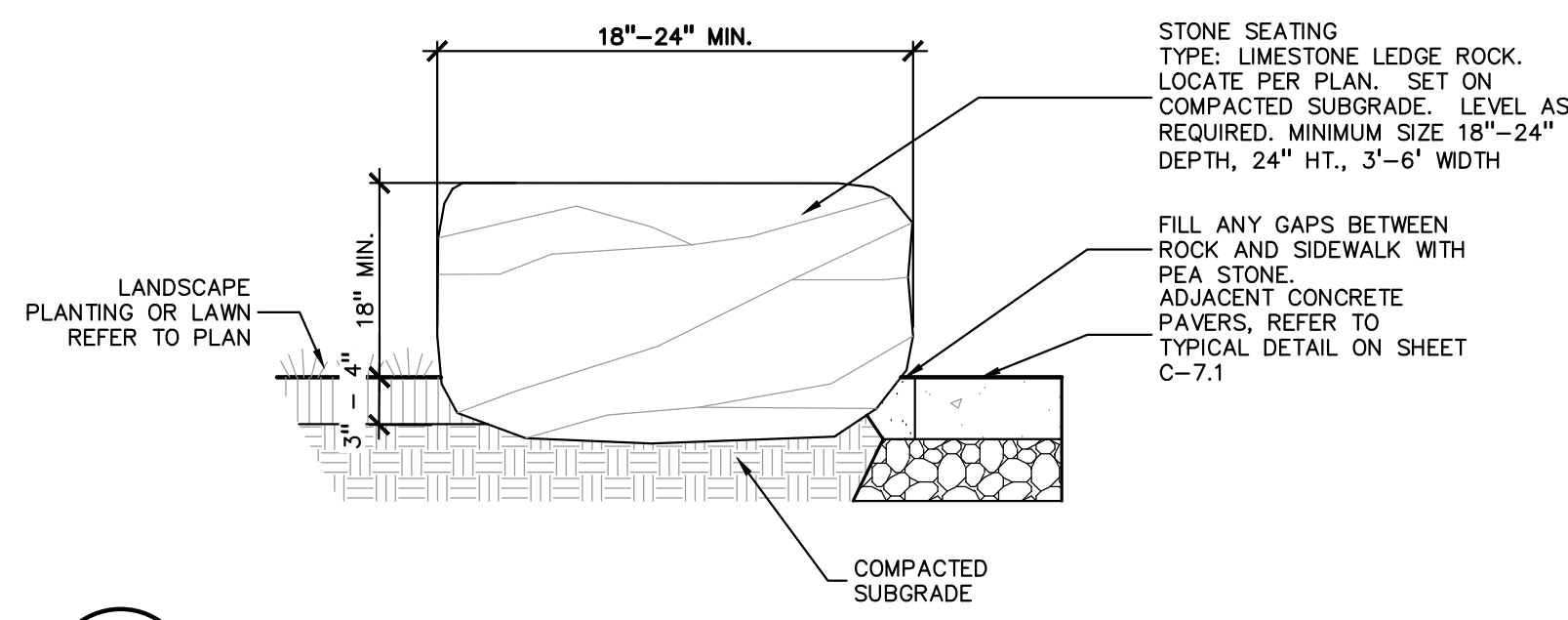
2 8' HT. VINYL COATED CHAIN LINK FENCE DETAIL

SCALE: 1/4" = 1'-0"



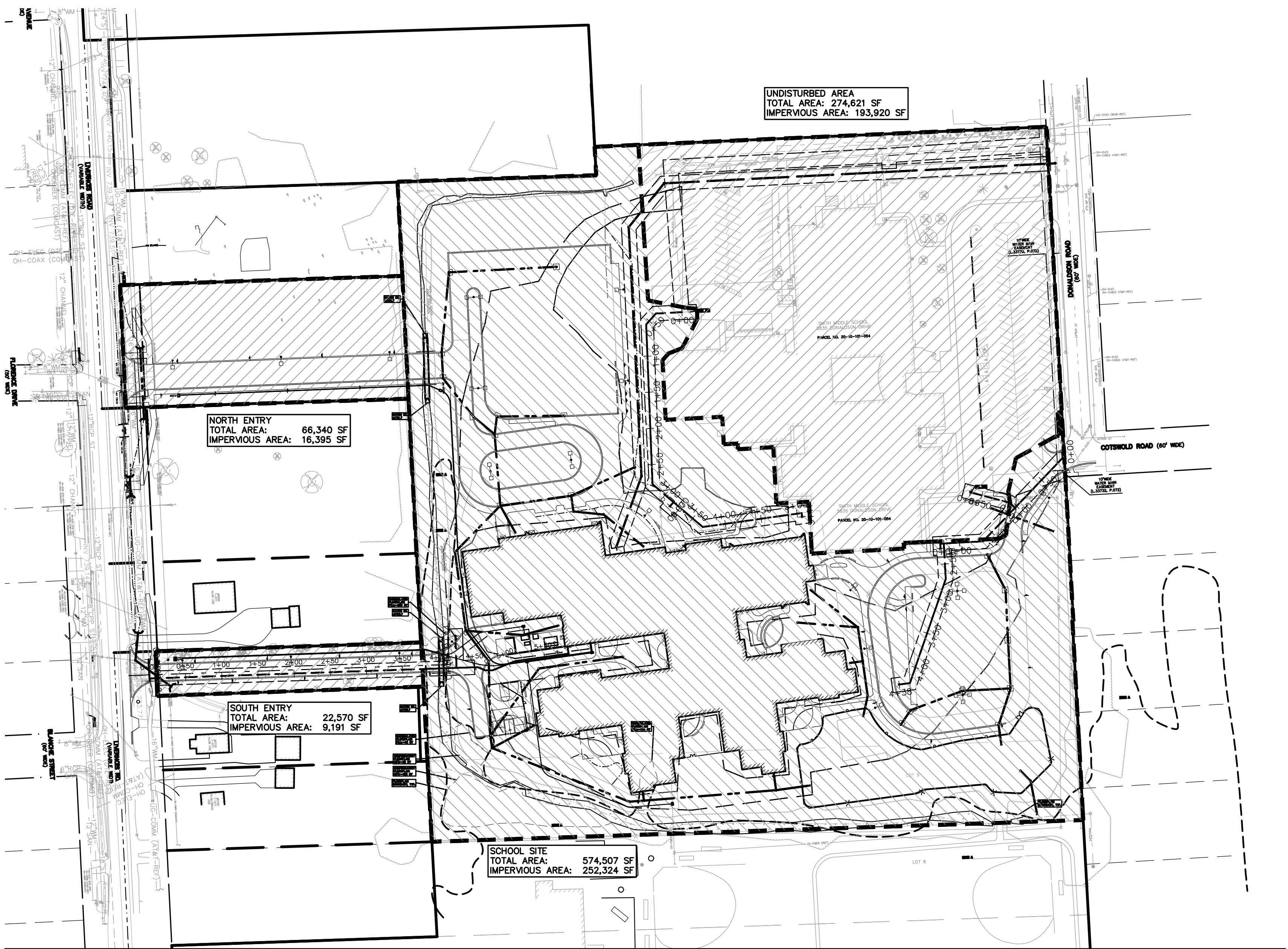
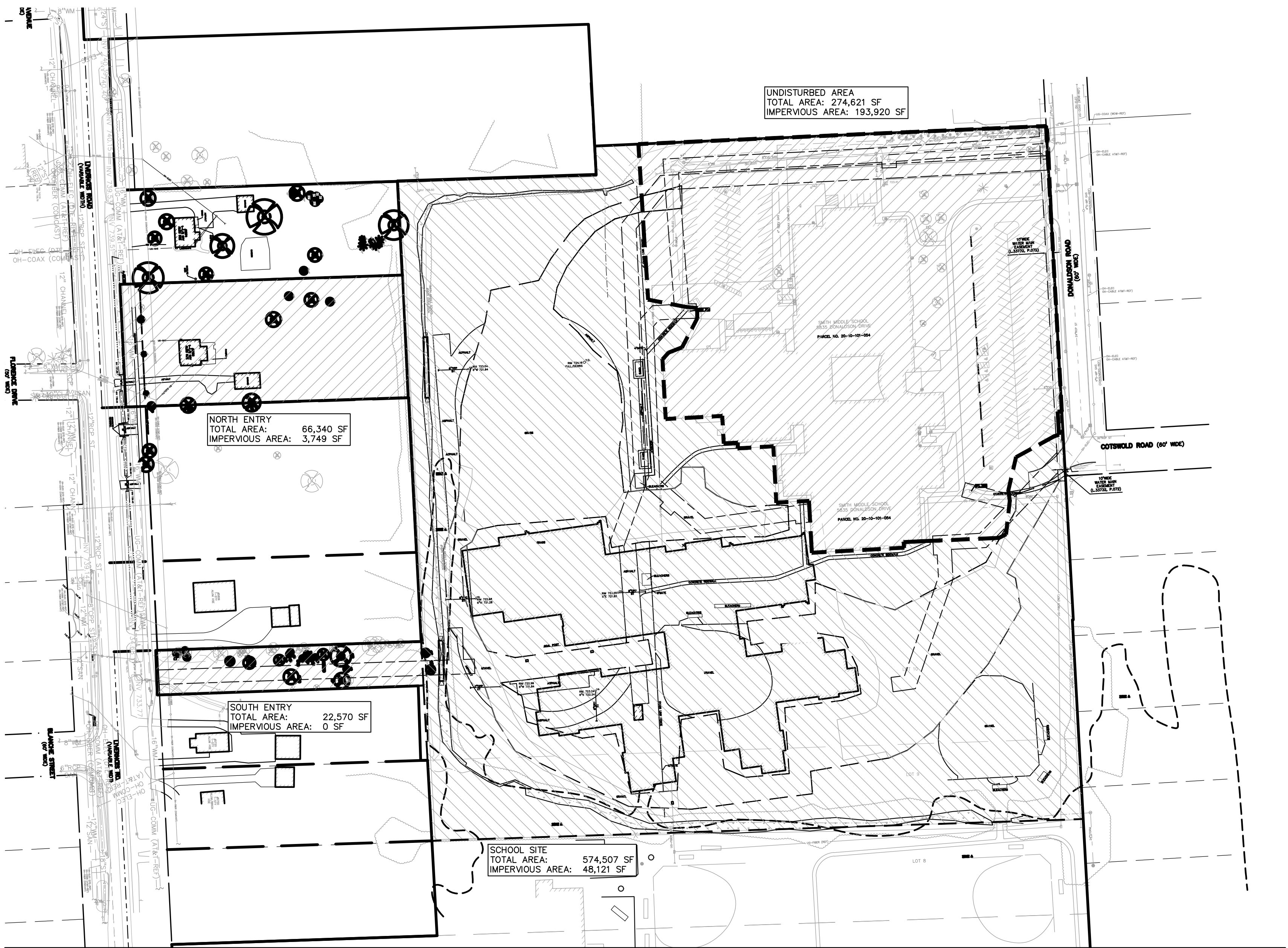
1 ALUMINUM FENCING DETAIL

SCALE: 1" = 1'-0"



5 LEDGE STONE SEATING DETAIL

SCALE: 1" = 1'-0"



RUNOFF COEFFICIENT, IMPERVIOUS AREA, TYPE D SOILS	0.95	98
RUNOFF COEFFICIENT, PERVIOUS AREA, TYPE C SOILS	0.25	74
RUNOFF COEFFICIENT, PERVIOUS AREA, TYPE D SOILS	0.30	80

DRAINAGE AREA	IMPERVIOUS		PERVIOUS		TOTAL		RUNOFF COEFFICIENT	CURVE NUMBER
	SF	ACRES	SF	ACRES	SF	ACRES		
EXISTING CONDITION								
NORTH ENTRY, HSG C	3,749	0.09	62,591	1.44	66,340	1.52	0.29	75
SOUTH ENTRY, HSG C	0	0.00	22,570	0.52	22,570	0.52	0.25	74
SCHOOL SITE, HSG D	48,121	1.10	526,386	12.08	574,507	13.19	0.35	82
SUB-TOTAL	51,870	1.19	611,547	14.04	663,417	15.23	0.34	81
UNDISTURBED, HSG D	193,920	4.45	80,701	1.85	274,621	6.30	0.76	93
TOTAL	245,790	5.64	692,248	15.89	938,038	21.53	0.47	84
PROPOSED CONDITION								
NORTH ENTRY, HSG C	16,395	0.38	49,945	1.15	66,340	1.52	0.42	80
SOUTH ENTRY, HSG C	9,191	0.21	13,379	0.31	22,570	0.52	0.54	84
SCHOOL SITE, HSG D	252,324	5.79	322,183	7.40	574,507	13.19	0.59	88
SUB-TOTAL	277,910	6.38	385,507	8.85	663,417	15.23	0.57	87
UNDISTURBED	193,920	4.45	80,701	1.85	274,621	6.30	0.76	93
TOTAL	749,740	17.21	851,715	19.55	1,601,455	36.76	0.60	88

DRAINAGE AREAS SUMMARY

Site Drainage Data			
Select County:	Oakland		
Existing			
Natural Greenspace area:	1.96 acre	C =	0.25
Select NCRS Soil type:	C		
Improved Greenspace area:	12.08 acre	C =	0.30
Select NCRS Soil type:	D		
Wooded Area:	0.00 acre	C =	0.25
Select NCRS Soil type:	C		
Impervious Area:	1.19 acre	C =	0.95
Greenbelt Area:	14.04 acre	C =	0.29
Total Area (A):	15.23 acre		
Weighted Coefficient of Runoff (C):			0.34
Proposed			
Natural Greenspace area:	1.48 acre	C =	0.25
Select NCRS Soil type:	C		
Improved Greenspace area:	7.40 acre	C =	0.30
Select NCRS Soil type:	D		
Wooded Area:	0.00 acre	C =	0.25
Select NCRS Soil type:	C		
Impervious Area:	6.37 acre	C =	0.95
Greenbelt Area:	8.86 acre	C =	0.29
Total Area (A):	15.23 acre		
Weighted Coefficient of Runoff (C):			0.57
Rainfall Intensity			
Flood Control Time of Concentration, Tc =	22.00 minutes		

DETENTION CALCULATION INPUT SUMMARY

Rainfall Intensity		17142020 Oakland V2.02
Time of Concentration (Tc)	22.00 min	
Since 15-Tc<60, use intensity equation		
I = 30.2 / (T + 9.17)^.81	1.86 in/hr	
I10 = 50.12 / (T + 9.17)^.81	3.09 in/hr	
I100 = 83.3 / (T + 9.17)^.81	5.14 in/hr	
CPVC: Channel Protection Volume Control Volume		
Vcpvc = (4719)CA	40,966 cf	
CPRC: Channel Protection Rate Control Volume: Extended Detention		
Ved= (6897)CA	59,874 cf	
Qved = Ved / (48*60*60)	0.35 cfs	
100-Year Allowable Outlet Rate		
Since 2<Ac<100, Qout = 1.1055-0.206ln(A)		
Qout =	0.54 cfs/ac	
100-Year Peak Allowable Discharge		
Area, A =	15.23 ac	
Q100p = Qout(A)	8.29 cfs	
100-Year Runoff Volume		
V100R = (18,985)CA	164,811 cf	
100-Year Peak Inflow		
Q100p = C(I100)A	44.62 cfs	
Storage Curve Factor (Vs/Vr)		
R = 0.206-0.15 x ln(Q100P/Q100IN)	0.458	
100-Year Storage Volume		
Vs = R(V100R)	75,483 cf	
No infiltration will be provided, so no CPVC deduction is taken.		
V100D = Vs	75,483 cf	
V100D must be larger or equal to Ved:		
Is V100D>= Ved?	Yes	
V100D =	75,483 cf	

DETENTION CALCULATION RELUSTS SUMMARY

STORM WATER NARRATIVE:
THE TROY SCHOOL DISTRICT (TSD) UTILIZES A STORM WATER MANAGEMENT PROGRAM PLAN (SWMP) TO SIZE THE WATER QUALITY AND CHANNEL PROTECTION SYSTEMS FOR THIS SITE. THE SWMP IS BASED ON A 2-YEAR, 24-HOUR STORM EVENT. THE CITY OF TROY ENGINEERING DEPARTMENT HAS REQUESTED THE TSD FOLLOW THE OAKLAND COUNTY STORM WATER DETENTION REQUIREMENTS, WHICH UTILIZE A 100-YEAR, 24-HOUR STORM AS THE BASIS FOR THE CALCULATION EVEN THOUGH THEY ARE NOT OBLIGATED TO AND THE RESULTING STORM BASIN WILL BE APPROXIMATELY FOUR TIMES LARGER THAN WHAT IS REQUIRED BY THE SWMP.

Design Requirements	
CPRC Extended Detention: Ved=	59,874 cf
CPRC Allowable Outlet Rate: Qout=	0.35 cfs
Detention Storage Volume: Vdet=	75,483 cf
Detention Allowable Outlet Rate: Qout=	8.29 cfs
Detention Peak Inflow: Q100p=	44.62 cfs

Detention Basin			
CPRC Storage Elevation:	717.20		59,874 cf
Detention Storage Elevation:	717.83		75,483 cf
Elev. (ft)	Area (sf)	Vol. (cf)	Total Vol. (cf)
713.00	0	0	0
714.00	12,770	6,385	6,385
715.00	15,155	13,963	20,348
716.00	17,593	16,374	36,722
717.00	20,141	18,967	55,689
718.00	22,725	21,433	77,022
719.00	25,411	24,068	101,090
720.00		0	101,090
Bottom Elevation of Pond:		713.00	

Detention Basin Outlet Control Structure Design	
CPRC Volume Orifice Control	
Qout Release Rate:	59,874 cf
Detention Outlet Elevation:	713.00
Vdet Storage Elevation:	717.20
Avg. Head over Orifice (Hw):	h=0.5y
Area of Orifice (A):	0.0481 sf
A=Qo/(0.62*SQRT(2*g*Hw))	
Outlet Hole Diameter:	1.5 in
Restriction Hole Area:	0.0123 sf
Number of Restriction Holes:	4
Total Restriction Hole Area:	0.0491 sf
Discharge (Q):	0.354 cfs
Q = 0.62 * A * (2 * G * Hw)^0.5	
Drain Time:	47.02 hrs

100-Year Volume Orifice Control	
Qout Release Rate:	75,483 cf
Vdet Storage Elevation:	717.93
Flow through Qout Orifice at this head:	0.54 cfs
Q100-yr Allowed:	7.75 cfs
Res. Head over Orifice (Hres):	0.73 ft
Area of Orifice (A):	1.8254 sf
A=Qr/(0.62*SQRT(2*g*Hw))	
Outlet Hole Diameter:	0 in
Restriction Hole Area:	0.0000 sf
Number of Restriction Holes:	10
Total Restriction Hole Area:	0.0000 sf
Discharge (Q):	0.00 cfs
Q = 0.62 * A * (2 * G * Hw)^0.5	
Total Discharge (Qt):	0.54 cfs
Qt = Qout-R + Q	
Drain Time:	38.69 hrs

100-year Overflow Channel	
Required Flow Capacity, Q100p=	44.62 cfs
Depth of Water in Channel (H):	0.80 ft
Bottom Width of Channel (W):	10 ft
Side Slopes of Channel (1:Z):	3
Longitudinal Slope of Channel (S):	1 %
Mannings Coefficient (n):	0.025
Channel Flow Area (A):	9.92 sf
Channel Wetted Perimeter (P):	15.06 ft
Hydraulic Radius (R):	0.66 ft
Velocity in Channel (V):	4.50 fps
Actual Capacity:	44.64 cfs
Top Elevation of Overflow Channel:	718.43
Mannings Equation V = (1.486/n)*(R^2.48*S^0.5)	
Q=VA	

DETENTION POND SIZING SUMMARY



0 25 50 100
SCALE: 1" = 50'



CAUTION!
THE LOCATION AND DEPTH OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE CORRECTNESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTHS AND TELEPHONE PRIOR TO THE START OF CONSTRUCTION.



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REGISTRATION SEAL



CONSULTANT

PEA GROUP
t: 844.813.2949
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PROJECT TITLE
New Smith Middle School Bld Package No. 03

Troy School District Troy, Michigan

DRAWING TITLE
STORM WATER DETENTION CALCULATION

ISSUE DATES

01-14-2025	BULLETIN 9
12-20-2024	BULLETIN 6
11-19-2024	RDC SUBMITTAL
10-31-2024	CONSTRUCTION SET
10-24-2024	BULLETIN 3
10-15-2024	BULLETIN 2
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07-31-2024	CITY ENG. REVIEW
07-12-2024	ADDENDUM NO. 2
06-18-2024	CONSTRUCTION DOCUMENTS

DATE ISSUED FOR:

DRAWN JW

CHECKED TD

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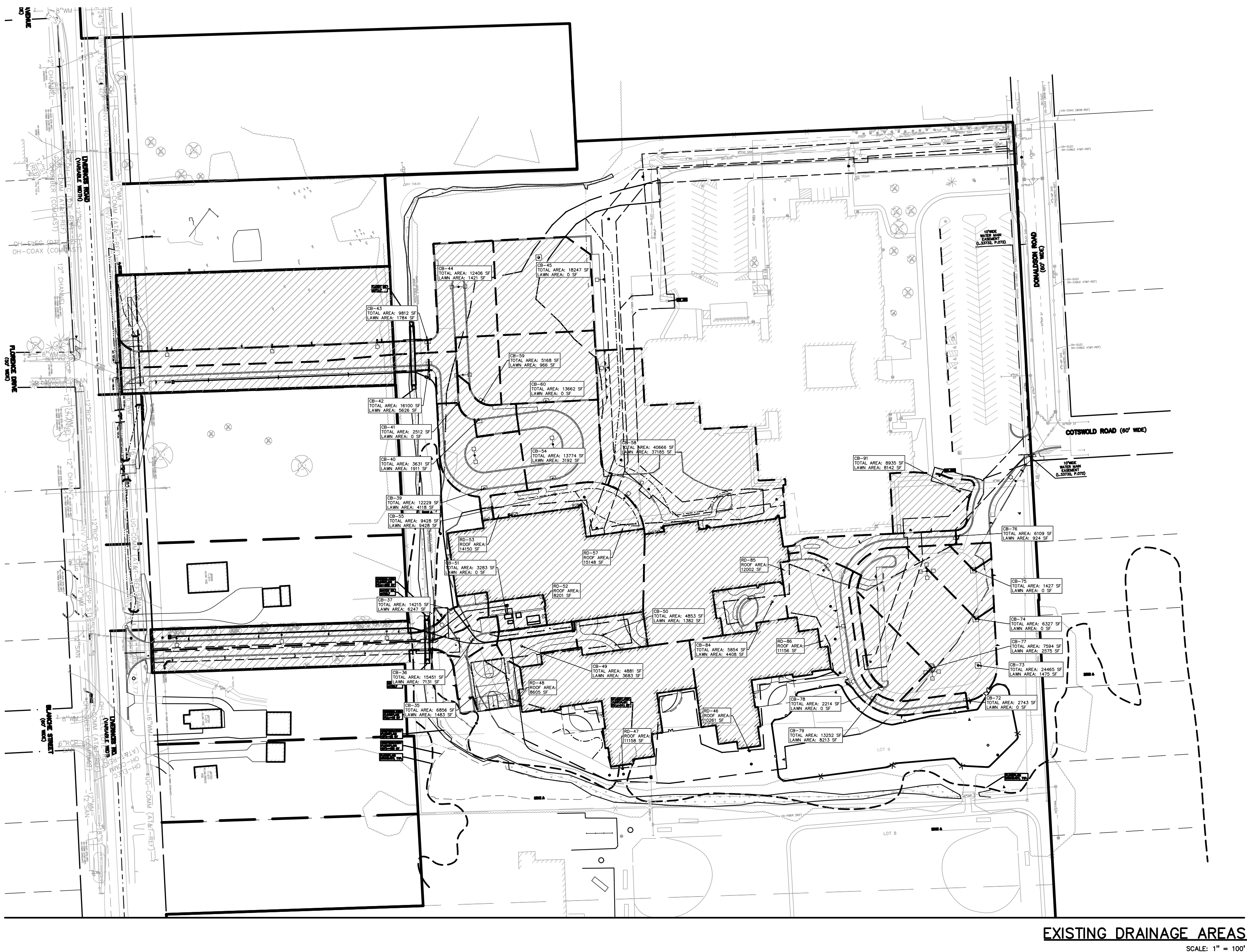
PROJECT NO.

22102

CITY OF TROY PROJECT NO.: 24.910.3

DRAWING NO.

C-8.0



RUNOFF COEFFICIENT, IMPERVIOUS AREA, TYPE D SOILS	0.95
RUNOFF COEFFICIENT, PERVIOUS AREA, TYPE C SOILS	0.25
RUNOFF COEFFICIENT, PERVIOUS AREA, TYPE D SOILS	0.35

DRAINAGE AREA	HSG	IMPERVIOUS		PERVIOUS		TOTAL		RUNOFF COEFFICIENT
		SF	ACRES	SF	ACRES	SF	ACRES	
30	D	0	0.00	0	0.00	0	0.00	0.95
31	D	0	0.00	0	0.00	0	0.00	0.95
32	D	0	0.00	0	0.00	0	0.00	0.95
33	D	0	0.00	0	0.00	0	0.00	0.95
34	D	0	0.00	0	0.00	0	0.00	0.95
35	D	5,373	0.12	1,483	0.03	6,856	0.16	0.82
36	C	8,320	0.19	7,131	0.16	15,451	0.35	0.63
37	C	7,968	0.18	6,247	0.14	14,215	0.33	0.64
38	D	0	0.00	0	0.00	0	0.00	0.95
39	D	8,111	0.19	4,118	0.09	12,229	0.28	0.75
40	D	1,720	0.04	1,911	0.04	3,631	0.08	0.63
41	D	2,512	0.06	0	0.00	2,512	0.06	0.95
42	C	10,474	0.24	5,626	0.13	16,100	0.37	0.71
43	C	8,028	0.18	1,784	0.04	9,812	0.23	0.82
44	D	10,985	0.25	1,421	0.03	12,406	0.28	0.88
45	D	18,247	0.42	0	0.00	18,247	0.42	0.95
46	D	10,261	0.24	0	0.00	10,261	0.24	0.95
47	D	11,158	0.26	0	0.00	11,158	0.26	0.95
48	D	8,605	0.20	0	0.00	8,605	0.20	0.95
49	D	1,198	0.03	3,683	0.08	4,881	0.11	0.50
50	D	3,471	0.08	1,382	0.03	4,853	0.11	0.78
51	D	3,283	0.08	0	0.00	3,283	0.08	0.95
52	D	8,201	0.19	0	0.00	8,201	0.19	0.95
53	D	14,150	0.32	0	0.00	14,150	0.32	0.95
54	D	10,582	0.24	3,192	0.07	13,774	0.32	0.81
55	D	0	0.00	9,428	0.22	9,428	0.22	0.35
56	D	0	0.00	0	0.00	0	0.00	0.95
57	D	15,148	0.35	0	0.00	15,148	0.35	0.95
58	D	3,481	0.08	37,185	0.85	40,666	0.93	0.40
59	D	4,202	0.10	966	0.02	5,168	0.12	0.84
60	D	13,662	0.31	0	0.00	13,662	0.31	0.95
70	D	0	0.00	0	0.00	0	0.00	0.95
71	D	0	0.00	0	0.00	0	0.00	0.95
72	D	2,743	0.06	0	0.00	2,743	0.06	0.95
73	D	22,990	0.53	1,475	0.03	24,465	0.56	0.91
74	D	6,327	0.15	0	0.00	6,327	0.15	0.95
75	D	1,427	0.03	0	0.00	1,427	0.03	0.95
76	D	5,185	0.12	924	0.02	6,109	0.14	0.86
77	D	5,119	0.12	2,475	0.06	7,594	0.17	0.75
78	D	2,214	0.05	0	0.00	2,214	0.05	0.95
79	D	5,039	0.12	8,213	0.19	13,252	0.30	0.58
80	D	0	0.00	0	0.00	0	0.00	0.95
81	D	0	0.00	0	0.00	0	0.00	0.95
82	D	0	0.00	0	0.00	0	0.00	0.95
83	D	0	0.00	0	0.00	0	0.00	0.95
84	D	1,446	0.03	4,408	0.10	5,854	0.13	0.50
85	D	12,002	0.28	0	0.00	12,002	0.28	0.95
86	D	11,156	0.26	0	0.00	11,156	0.26	0.95
TOTAL		264,788	6.08	103,052	2.37	367,840	8.44	0.78

90% RAINFALL WATER QUALITY STORM 0.90 INCHES
TIME OF CONCENTRATION 15 MINUTES
TIME OF CONCENTRATION 0.25 HOURS

STORM SEWER SYSTEM	IMPERVIOUS AREA	PERVIOUS AREA	TOTAL AREA	TOTAL AREA	PERCENT IMPERVIOUS	Rv	WATER QUALITY VOLUME, WQV		CURVE NUMBER	INITIAL ABSTRACTION	Ia/P	UNIT PEAK DISCHARGE	PEAK DISCHARGE	CONTECH UNIT
	AC	AC	AC	SQ MI			IN	CF				qu	Qp	
60-30	4.34	1.96	6.31	0.010	69%	0.67	0.60	13,797	97	0.062	0.069	740	4.39	cs-8
79-70	1.02	0.61	1.63	0.003	63%	0.61	0.55	3,268	96	0.083	0.092	740	1.04	cs-4
86-80	1.47	0.15	1.62	0.003	91%	0.87	0.78	4,579	99	0.041	0.046	740	1.46	cs-4

- NOTES:
- 90-PERCENT NON-EXCEEDANCE STORM TAKEN FROM TABLE 1 OF THE MDEQ MEMO DATED MARCH 24, 2006.
 - INITIAL ABSTRACTION VALUES TAKEN FROM TABLE 4-1 OF THE USDA NRCS DOCUMENT URBAN HYDROLOGY FOR SMALL WATERSHEDS, TR-55
 - UNIT PEAK DISCHARGE VALUES TAKEN FROM EXHIBIT 4-H OF THE USDA NRCS DOCUMENT URBAN HYDROLOGY FOR SMALL WATERSHEDS, TR-56

STORM SEWER SYSTEM DESIGN

Location: Oakland County

I = B/(T+D)^E

C = varies

T = 15 (min.)

B = 50.12

D = 9.17

E = 0.81

Pipe "n" Value = 0.013

