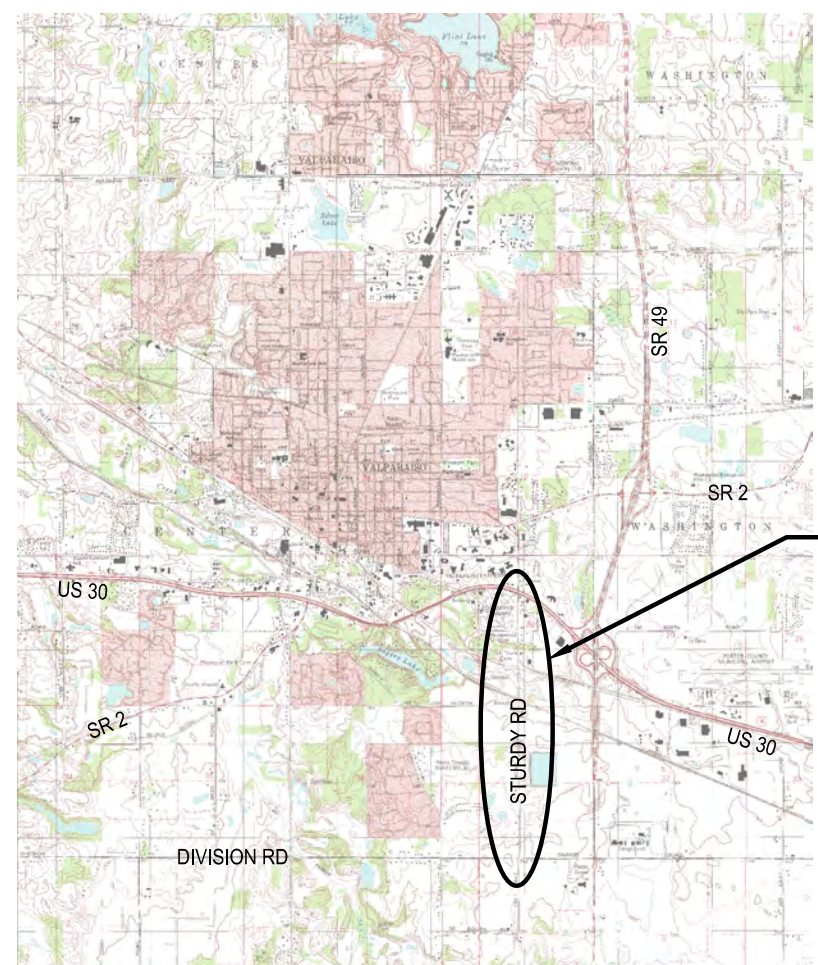


STURDY ROAD WATER MAIN EXTENSION

FOR THE

VALPARAISO CITY UTILITIES

VALPARAISO, INDIANA

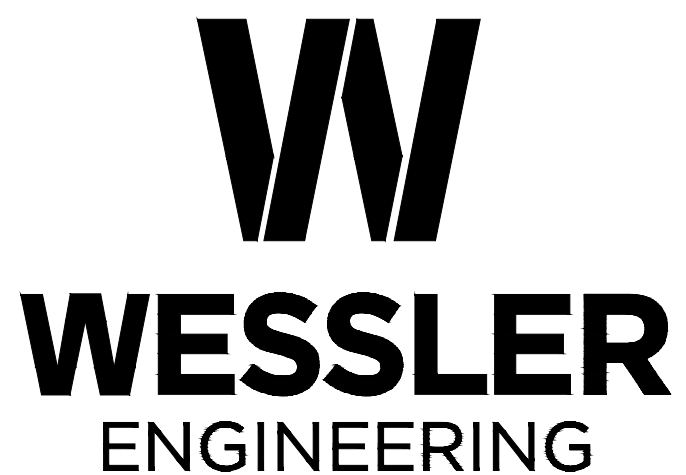


PROJECT LOCATION

VALPARAISO, IN
VICINITY MAP
SCALE: NONE



STATE LOCATION MAP
SCALE: NONE



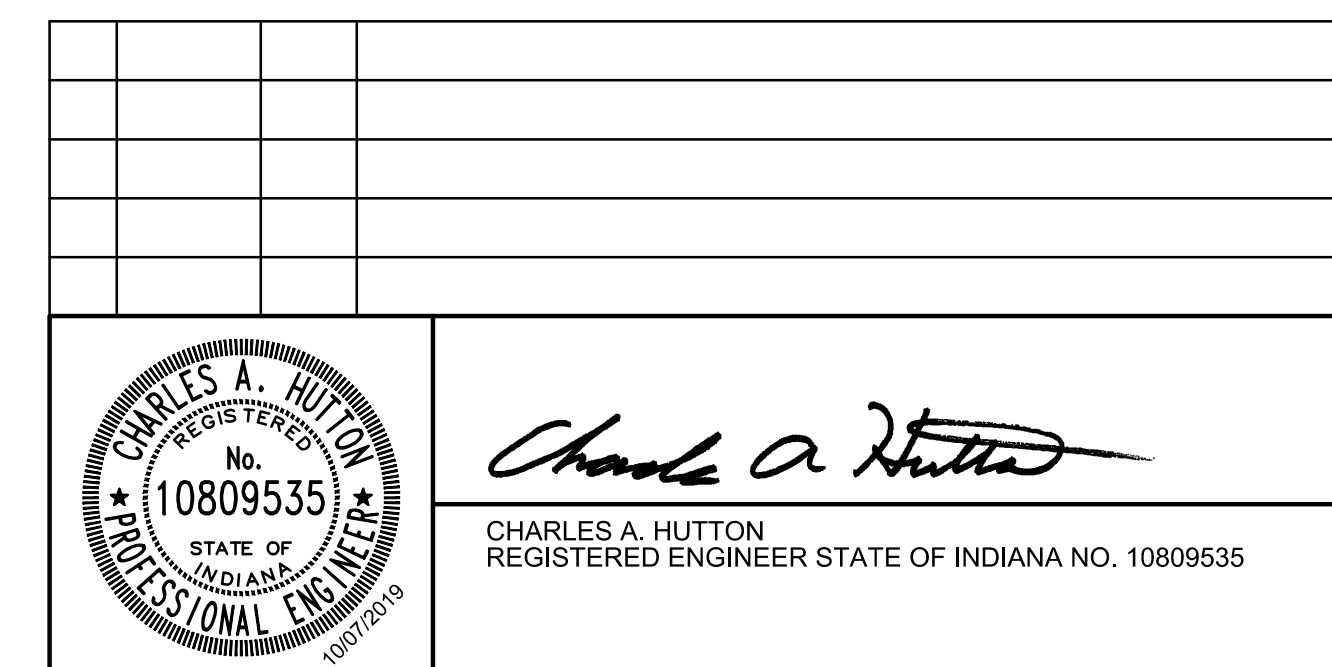
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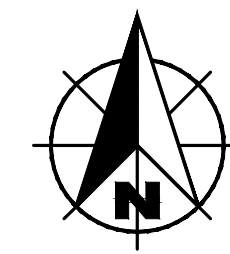
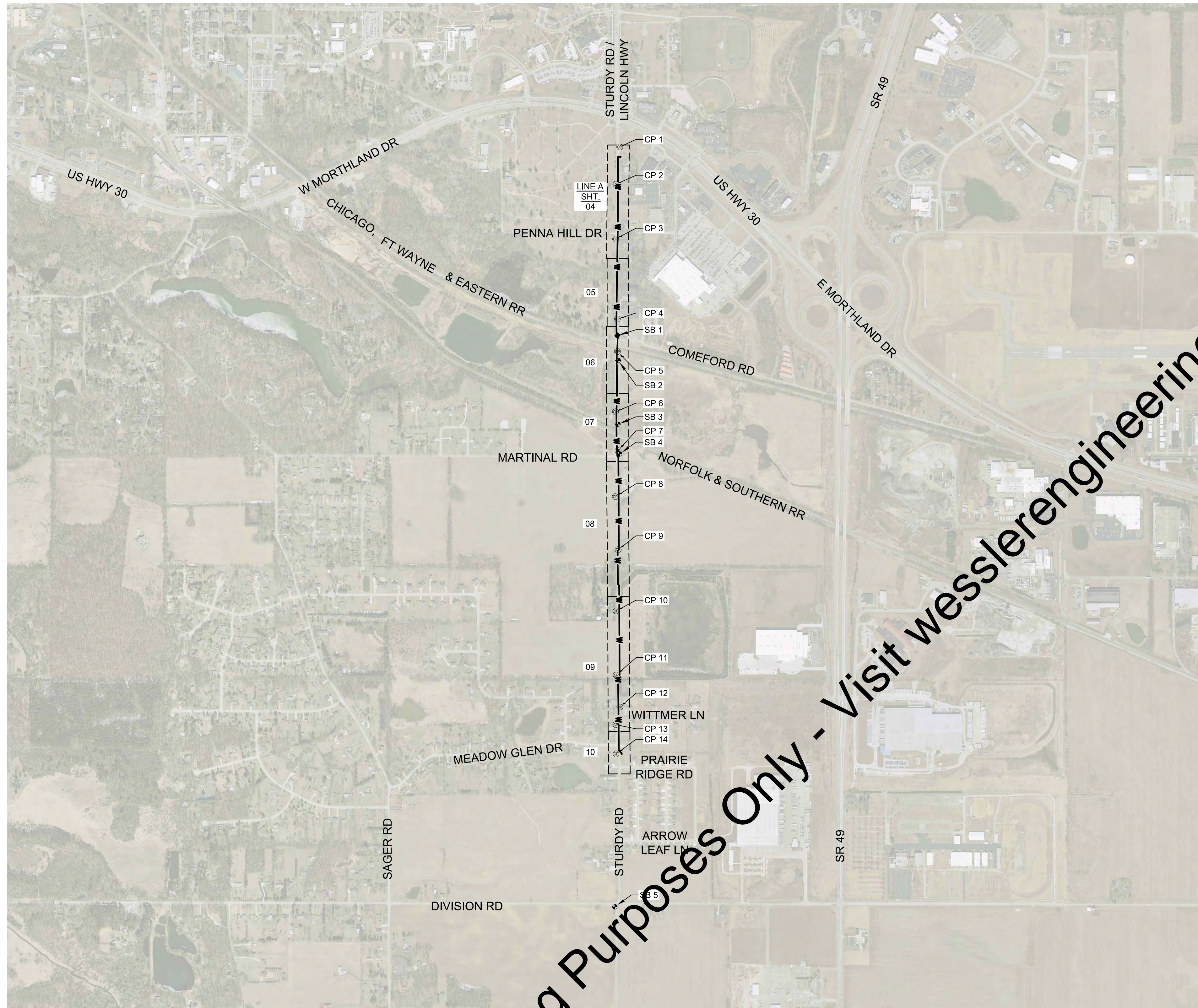
PROJECT NO. 208218-04-03

DRAWINGS PREPARED FOR:
HONORABLE JON COSTAS, MAYOR
BOARD OF PUBLIC WORKS AND SAFETY
JON COSTAS, PRESIDENT
STEVE POULOS, UTILITIES DIRECTOR
BILL OEDING, CITY ADMINISTRATOR
SHARON SWIHART, CLERK TREASURER

OCTOBER 2019



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HORIZONTAL AND VERTICAL CONTROL INFORMATION

- NOTES:
1. A FIELD SURVEY WAS PERFORMED IN FEBRUARY 2019.
 2. COORDINATES (INDIANA STATE PLANE, WEST ZONE, NAD 83) AND ELEVATIONS (NAVD 83) ARE BASED ON INCORS.
 3. UNITS ARE U.S. SURVEY FEET.
 4. CONTROL POINTS WERE SET USING GPS.

CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP 1	2262276.04	2965575.87	787.1	5/8" REBAR
CP 2	2261833.98	2965529.42	777.2	5/8" REBAR
CP 3	2261185.62	2965527.11	767.8	5/8" REBAR
CP 4	2260237.31	2965548.39	757.5	5/8" REBAR
CP 5	2259850.56	2965548.82	754.9	5/8" REBAR
CP 6	2259137.39	2965524.70	732.4	5/8" REBAR
CP 7	2258676.29	2965555.79	733.8	5/8" REBAR
CP 8	2258131.59	2965523.90	753.9	5/8" REBAR
CP 9	2257504.07	2965557.66	750.8	5/8" REBAR
CP 10	2256777.51	2965532.90	774.3	5/8" REBAR
CP 11	2256017.08	2965534.98	771.6	5/8" REBAR
CP 12	2255637.92	2965576.91	777.0	5/8" REBAR
CP 13	2255430.18	2965529.46	772.8	5/8" REBAR
CP 14	2255083.41	2965532.68	771.5	5/8" REBAR

SOIL BORINGS			
DESCRIPTION	NORTHING	EASTING	DEPTH
SB 1	2260040.6	2965549.6	25'
SB 2	2259745.6	2965568.2	25'
SB 3	2258990.0	2965554.9	25'
SB 4	2258638.1	2965574.7	25'
SB 5	2253272.4	2965518.8	25'

SOIL BORING LOCATIONS ARE BASED OFF OF THE INFORMATION FOUND IN THE GEOTECHNICAL REPORT. A COPY OF THE GEOTECHNICAL REPORT CAN BE FOUND IN APPENDIX A OF THE PROJECT MANUAL. NEITHER THE ENGINEER NOR THE OWNER ARE RESPONSIBLE FOR ANY INFORMATION THEREIN.

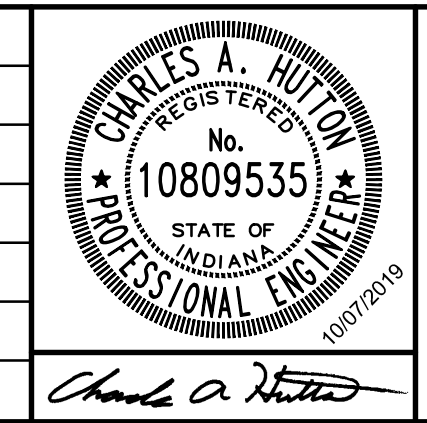
DRAWING INDEX	
SHEET NO.	DESCRIPTION
GENERAL	
01	TITLE SHEET
02	LOCATION PLAN AND DRAWING INDEX
03	LEGEND, ABBREVIATIONS AND GENERAL NOTES
PLAN SHEETS	
04	PLAN - LINE A (0+00 TO 12+50)
05	PLAN - LINE A (12+50 TO 20+50)
06	PLAN AND PROFILE - LINE A (20+50 TO 28+50)
07	PLAN AND PROFILE - LINE A (28+50 TO 36+50)
08	PLAN - LINE A (36+50 TO 52+50)
09	PLAN - LINE A (52+50 TO 68+50)
10	PLAN - LINE A (68+50 TO END)
DETAILS	
11	MISCELLANEOUS DETAILS
12	MISCELLANEOUS DETAILS
13	DETOUR PLAN AND MAINTENANCE OF TRAFFIC DETAILS
14	MAINTENANCE OF TRAFFIC DETAILS
15	EROSION CONTROL DETAILS

LOCATION AND SCOPE OF WORK PLAN
0 350 700 1400 FT
1"=700'

Drawing: J:\Valparaiso\Projects\208218_Valparaiso Water Loop\CAD\04-03\DWG\Sheets\208218-03.dwg | Layout: IDX | Plotter: 10031919 @ 12x48.07 | LastSavedBy: Michelle

2013 IMAGERY FROM INDIANA STATE MAP.

SCALE VERIFICATION	DRAWN BY	MR	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	CAH				
	APPROVED BY	CAH				
	ISSUE DATE					
	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					



STURDY ROAD WATER MAIN EXTENSION
VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

LOCATION PLAN AND DRAWING INDEX

SHEET NO.	02
TOTAL SHEETS	15

EXISTING FEATURES LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BENCH MARK		CISTERN		EASEMENT - CONSTRUCTION/PERMANENT
	TEMPORARY BENCH MARK		ELECTRIC METER		LOT BOUNDARY
	SOIL BORING LOCATION		AIR CONDITIONING UNIT		PROPERTY BOUNDARY
	SECTION CORNER		UTILITY RISER (DEFINED BY UTILITY)		RIGHT-OF-WAY - TEMPORARY/PERMANENT
	DRILL HOLE IN CONCRETE/HARRISON MONUMENT		UTILITY PEDESTAL (DEFINED BY UTILITY)		SECTION BOUNDARY
	CONTROL POINT (SET/FOUND)		UTILITY MARKER (DEFINED BY UTILITY)		WETLANDS
	MAGNETIC NAIL (SET/FOUND)		JOINT POWER/TELEPHONE POLE		CONTOUR - INTERMEDIATE ELEVATION
	BOAT SPIKE (SET/FOUND)		LIGHT POLE		CONTOUR - INDEX ELEVATION
	PK NAIL (SET/FOUND)		LIGHT ON POWER POLE		OVERHEAD ELECTRIC
	RAILROAD SPIKE (SET/FOUND)		LIGHT ON JOINT POLE		OVERHEAD CABLE TV
	R/W MARKER - CONCRETE/GRANITE/STONE		POWER POLE		OVERHEAD TELEPHONE
	IRON PIPE/IRON PIN/REBAR (WITH DIAMETER)		TELEPHONE POLE		UNDERGROUND CABLE TV
	BRASS PLUG		LAMP POST		UNDERGROUND ELECTRIC
	CABLE TV MANHOLE		GUY ANCHOR		UNDERGROUND FIBER OPTIC
	ELECTRIC MANHOLE		GUY POLE OR STUB		GAS MAIN
	GAS MANHOLE		CONTROLLER CABINET		DIGESTER GAS
	OTHER MANHOLE		FLAG POLE		PETROLEUM MAIN
	TELEPHONE MANHOLE		POST		UNDERGROUND TELEPHONE
	TELEPHONE VAULT		GROUND LIGHT		WATER MAIN
	TRAFFIC MANHOLE		MAILBOX		WATER SERVICE
	TRAFFIC HANDHOLE		DOUBLE/MULTIPLE MAILBOX		FORCEMAIN
	WATER MANHOLE		MAST ARM POLE		GRAVITY SEWER PIPE
	AIR RELEASE VALVE		TRAFFIC SIGNAL STRAIN POLE		PLANT CHLORINE PIPE
	SANITARY SEWER MANHOLE		SIGNAL LOOP DETECTOR BOX		TOP OF BANK/TOE OF SLOPE
	DRAINAGE/STORM SEWER MANHOLE		SIGNAL LOOP DETECTOR LOOP		CENTERLINE OF DITCH/SWALE/STREAM
	SANITARY SEWER CLEANOUT		SIGN - SINGLE POST		FENCE - FIELD
	SEPTIC TANK		SIGN - DOUBLE POST		FENCE - METAL
	VALVE VAULT		SIGN - RAILROAD SIGNAL		FENCE - WOOD
	BEEHIVE INLET		SIGN - RAILROAD CROSSING		GUARDRAIL
	CURB INLET		BUSH		STREAM
	DROP INLET		STUMP		TREE/BRUSH LINE
	CATCH BASIN		TREE - CONIFEROUS		
	DOWNSPOUT		TREE - DECIDUOUS		
	GAS METER		ROCK OUTCROP		
	GAS VALVE		SATELLITE		
	GAS SERVICE VALVE		SPRINKLER CONTROL VALVE		
	PETROLEUM VALVE		WATER METER		
	PETROLEUM SHUTOFF VALVE		WATER VALVE		
	GAS STATION MONITORING WELL		WATER SERVICE VALVE		
	GAS STATION FILL CAP		WATER WELL		
	NATURAL GAS WELL/STORAGE WELL		WET WELL		
	SPRINKLER HEAD		FIRE HYDRANT		
	YARD HYDRANT		PROCESS VALVE		

TABLE OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	IPS	IRON PIPE SIZE
ALUM	ALUMINUM	ISPC	INDIANA STATE PLANE COORDINATE
APP	APPARENT	LB	POUND(S)
APPROX	APPROXIMATE(LY)	LF	LINEAR FEET
ASPH	ASPHALT	LN	LANE
ASSOC	ASSOCIATES	LS	LIFT STATION
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	MA EX	MATCH EXISTING
AVE	AVENUE	MJ	MECHANICAL JOINT
AVG	AVERAGE	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BLVD	BOULEVARD	MH	MANHOLE
BM	BENCHMARK	MIN	MINIMUM
CO	CLEANOUT	MISC	MISCELLANEOUS
CI	CAST IRON	N	NORTHING, NORTH
CL	CENTER LINE	NGS	NATIONAL GEODETIC SURVEY
CMA	COLD MIX ASPHALT	NO.	NUMBER
CMP	CORRUGATED METAL PIPE	OC	ON CENTER
CMU	CONCRETE MASONRY UNIT	OD	OUTSIDE DIAMETER
CONC	CONCRETE	PC	POINT OF CURVE (BEGIN CURVE)
CONT	CONTINUOUS	POLY	POLYETHYLENE
CNR	CORNER	PI	POINT OF INTERSECTION
CP	CONTROL POINT	POT	POINT OF TANGENT
CPP	CORRUGATED PLASTIC PIPE	PT	POINT OF TANGENT (END CURVE)
CR STN	CRUSHED STONE	PSI	POUNDS PER SQUARE INCH
CYD	CUBIC YARD	PT	POINT
D	DEPTH	PVC	POLYVINYL CHLORIDE
DI	DUCTILE IRON	R	RADIUS
DI MJ	DUCTILE IRON MECHANICAL JOINT	ROW	RIGHT-OF-WAY
DBL	DOUBLE	RC	REINFORCED CONCRETE PIPE
DIA	DIAMETER	RD	ROAD
DIP	DUCTILE IRON PIPE	S	SOUTH
DIPS	DUCTILE IRON PIPE SIZE	SR	STATE ROUTE
DR	DRIVE	SST	STAINLESS STEEL
E	EASTING, EAST	SVA	SERVICE VALVE ASSEMBLY
EF	EACH FACE	SB	SOIL BORING
EW	EACH WAY	SCHED	SCHEDULE
EA	EACH	SDR	STANDARD DIMENSION RATIO
EJ	EAST JORDAN ROAD WORKS	SECT	SECTION
EL	ELEVATION	SF	SQUARE FEET
EX	EXISTING	SHT	SHEET
EXP	EXTENSION	SPECS	SPECIFICATION(S)
FFE	FINISH FLOOR ELEVATION	SQ	SQUARE
FM	FORCE MAIN	SRF	STATE REVOLVING FUND
FND	FOUND	ST	STREET
FT	FEET	STA	STATION
FTG	FOOTING	SYD	SQUARE YARD
GAL	GALVANIZED	TBM	TEMPORARY BENCHMARK
GPS	GLOBAL POSITIONING SYSTEM	TC	TOP OF CASTING
HMA	HOT MIX ASPHALT	TYP	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE	USGS	US GEOLOGICAL SURVEY
HORIZ	HORIZONTAL	VERT	VERTICAL
ID	INSIDE DIAMETER	VLV	VALVE
IE	INVERT ELEVATION	W	WIDTH, WEST
INC	INCORPORATED	WSE	WATER SURFACE ELEVATION
INDOT	INDIANA DEPARTMENT OF TRANSPORTATION	YR	YEAR
INSTR	INSTRUMENT		
INV	INVERT		

*NOTE: THIS TABLE IS A LISTING OF TYPICAL ABBREVIATIONS AND MAY NOT INCLUDE ALL ABBREVIATIONS FOUND WITHIN THIS PLAN SET. IF A QUESTION ARISES ON THE MEANING OF AN ABBREVIATION NOT LISTED IN THIS TABLE, PLEASE CONTACT THE ENGINEER FOR CLARIFICATION.

GENERAL NOTES:

- NOTIFY THE ENGINEER IF ANY CONFLICTING INFORMATION BECOMES APPARENT IN THE CONTRACT DOCUMENTS AS SOON AS POSSIBLE AND PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE VICINITY OF OR RELATIVE TO THE APPARENT CONFLICT SO THAT CLARIFICATION MAY OCCUR PRIOR TO CONSTRUCTION.
- ANY ALTERATIONS TO THESE DRAWINGS NOT AUTHORIZED BY WESSLER ENGINEERING AND NOT IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND RECORDS ON FILE AT WESSLER ENGINEERING SHALL RELIEVE WESSLER ENGINEERING OF ANY RESPONSIBILITY FOR THE ACCURACY OF THE DRAWINGS.
- USE CAUTION DURING THE EXECUTION OF WORK TO PREVENT DAMAGE TO STATE, COUNTY, MUNICIPAL, AND PRIVATE PROPERTY. REPAIR ALL DAMAGES AS A RESULT OF OPERATIONS, INCLUDING DAMAGE TO DRAINAGE STRUCTURES, FIELD TIES, PUBLIC/PRIVATE ROADS, AND LANDSCAPING (INCLUDING FENCING). REPAIR AND REPLACE DAMAGED ITEMS AT NO ADDITIONAL COST TO THE OWNER. PERFORM ALL REPAIR AND REPLACEMENT WORK TO THE SATISFACTION OF THE PERMITTING AGENCY, THE OWNER AND THE ENGINEER.
- TAKE CARE TO AVOID DAMAGE TO PAVED AREAS WHICH ARE NOT SPECIFICALLY CALLED OUT FOR REPAIR OR REPLACEMENT. REPAIR OR REPLACE ALL SUCH PAVEMENTS WHICH ARE DAMAGED BY CONSTRUCTION ACTIVITIES AND CONSTRUCTION TRAFFIC AT NO ADDITIONAL COST TO THE OWNER.
- OBTAIN ALL TEMPORARY EASEMENTS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.
- COMPLY WITH ALL APPLICABLE PERMITS AND REGULATIONS. APPLICABLE PERMITS ISSUED TO THE OWNER WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT ALL APPLICABLE PERMITTING AGENCIES WITHIN THE PERIOD SPECIFIED BY THAT AGENCY PRIOR TO BEGINNING CONSTRUCTION.
- ALL EXISTING AND NEW UTILITY INFORMATION, INCLUDING BUT NOT LIMITED TO LOCATION, SIZE AND INVERT ELEVATION, IS SHOWN BASED UPON AVAILABLE INFORMATION. THE ENGINEER DOES NOT GUARANTEE OR ASSUME SUCH INFORMATION TO BE TRUE, ACCURATE, ALL INCLUSIVE OR EVEN APPROXIMATE. CONTACT THE INDIANA UNDERGROUND PLANT PROTECTION SERVICE (IUPPS) AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY. CONTACT NON-MEMBER UTILITIES DIRECTLY.
- DETERMINE WHICH UTILITIES MAY CONFLICT WITH WORK AND VERIFY THEIR LOCATION, SIZE AND ELEVATION PRIOR TO CONSTRUCTION AND DETERMINE IF THERE ARE ANY DISCREPANCIES OR CONFLICTS. IF ANY DISCREPANCIES OR CONFLICTS ARE DISCOVERED, NOTIFY THE ENGINEER AS SOON AS POSSIBLE.
- EXISTING UTILITY SERVICE LINES TO INDIVIDUAL CUSTOMERS MAY NOT BE SHOWN ON THE DRAWINGS. ASSUME THAT UNDERGROUND SERVICE LINES FOR ALL UTILITIES EXIST TO EACH PROPERTY ALONG THE ROUTE OF THE PLANNED IMPROVEMENTS.
- COORDINATE ALL WORK WITH THE RESPECTIVE UTILITIES. SCHEDULE WORK ACCORDINGLY, AND NOTIFY ALL UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY.
- COORDINATE PLANNED UTILITY SERVICE INTERRUPTIONS WITH THE RESPECTIVE UTILITIES AND THE UTILITIES' AFFECTED CUSTOMERS. SERVICE INTERRUPTIONS SHOULD NOT LAST MORE THAN FOUR (4) HOURS. GIVE WRITTEN NOTICE TO ALL AFFECTED UTILITY CUSTOMERS AND PROPERTY OWNERS AT LEAST TWENTY-FOUR (24) HOURS BUT NOT MORE THAN SEVENTY-TWO (72) HOURS PRIOR TO ANY PLANNED INTERRUPTION OF UTILITY SERVICE.
- USE CAUTION DURING THE EXECUTION OF WORK TO PREVENT DAMAGE TO EXISTING UTILITIES. REPAIR OR REPLACE ALL PUBLIC AND PRIVATE FACILITIES DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS. BRACE AND PROTECT ALL UTILITY POLES AND EXISTING STRUCTURES ADJACENT TO NEW EXCAVATIONS. UTILITY POLE BRACING SHALL BE AS DIRECTED BY THE GOVERNING UTILITY.
- MAINTAIN EXISTING STORMWATER DRAINAGE FOR THE ENTIRE DURATION OF THE PROJECT.
- DO NOT DISTURB EXISTING MANHOLES OR INLETS, UNLESS NOTED OTHERWISE.
- ALL EQUIPMENT, APPURTENANCES AND PIPING REMOVED AS PART OF THE DEMOLITION SHALL FIRST BE OFFERED TO THE OWNER FOR SALVAGE. DELIVER SALVAGED ITEMS SELECTED BY OWNER TO A LOCATION DESIGNATED BY THE OWNER OR ENGINEER. IN THE EVENT THE OWNER DOES NOT ELECT TO KEEP THE REMOVED ITEMS, REMOVE SUCH ITEMS FROM THE SITE AND DISPOSE OF AT A LOCATION APPROVED FOR SUCH DISPOSAL AT THE CONTRACTOR'S EXPENSE.
- COORDINATE STAGING AREA LOCATIONS WITH THE OWNER.
- ALL CONSTRUCTION TRAFFIC SHALL USE MAJOR ROADS. NO CONSTRUCTION TRAFFIC SHALL USE LOCAL STREETS FOR INDIRECT ACCESS.
- TO CONTROL DUST, REMOVE SOIL FROM STREETS USED BY CONSTRUCTION TRAFFIC DAILY, VACUUM AND WATER AS NECESSARY AND/OR AS DIRECTED BY THE OWNER.
- NORTHING AND EASTING INFORMATION IS GIVEN AT CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
- PLACE NO. 8 CRUSHED AGGREGATE BETWEEN PIPES AT ALL PIPE CROSSINGS TO PREVENT PIPE SETTLEMENT UNLESS SHOWN OTHERWISE.
- VERIFY EXISTING SEWER INVERTS AND LOCATIONS PRIOR TO CONSTRUCTION AND DETERMINE IF THERE ARE ANY DISCREPANCIES OR CONFLICTS.
- RESET ALL MAILBOXES AND SIGNS DISTURBED BY CONSTRUCTION ACTIVITIES.
- IF REQUIRED, PLACE TEMPORARY OVERNIGHT AGGREGATE WEDGES AT DRIVEWAYS TO ALLOW PROPERTY OWNER ACCESS.



UTILITY CONTACTS

GAS

NIPSCO - GAS
22 S STATE RD 49
VALPARAISO, IN 46382
219-477-5036
ATTN: HEATHER TOKARZ
HTOKARZ@NISOURCE.COM

ELECTRIC

NIPSCO - ELECTRIC
801 E 86th AVE
MERRILLVILLE, IN 46410
219-477-5036
ATTN: JIM SKIFF
JRSKIFF@NISOURCE.COM

SEWER

VALPARAISO CITY UTILITIES
2401 JOLIET RD
VALPARAISO, IN 46385
219-462-6174, x1319
ATTN: MARK GESKEY
MGESKEY@VALPO.US

FIBER/TELEPHONE

FRONTIER COMMUNICATIONS
2401 CHICAGO ST
VALPARAISO, IN 46383
219-531-2118
ATTN: DIANA SACKS
DIANA.L.SACKS@FTR.COM

VCU UTILITIES

VALPARAISO CITY UTILITIES
1855 JOLIET RD
VALPARAISO, IN 46385
219-462-6174
ATTN: STEVE POULOS
SPOULOS@VALPO.US

HIGHWAY

PORTER CO HIGHWAY
155 INDIANA AVE
VALPARAISO, IN 46383
219-465-3543
ATTN: MICHAEL NOVOTNEY
MNOVOTNEY@PORTERCO.ORG
ATTN: RICH SEXTON
RICH.SEXTON@PORTERCO.ORG

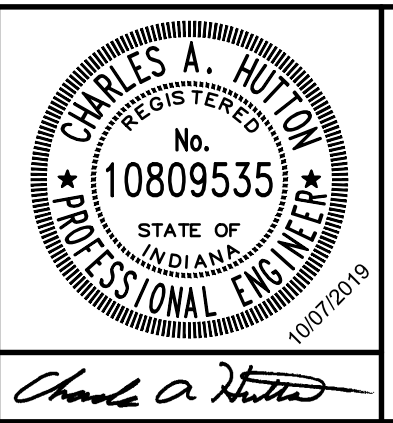
CABLE

COMCAST
17 WASHINGTON ST
VALPARAISO, IN 46383
219-510-5821
ATTN: RICK WALSTRA

*NOTE: THIS TABLE IS A LISTING OF TYPICAL EXISTING SYMBOLS AND MAY NOT INCLUDE ALL EXISTING SYMBOLS FOUND WITHIN THIS PLAN SET. ALL PROPOSED ITEMS WILL BE CALLED OUT ON THEIR PLAN SHEETS. IF A QUESTION ARISES ON THE MEANING OF ANY SYMBOL NOT LISTED IN THIS TABLE, PLEASE CONTACT THE ENGINEER FOR CLARIFICATION. THE SYMBOLS ARE NOT TO SCALE.

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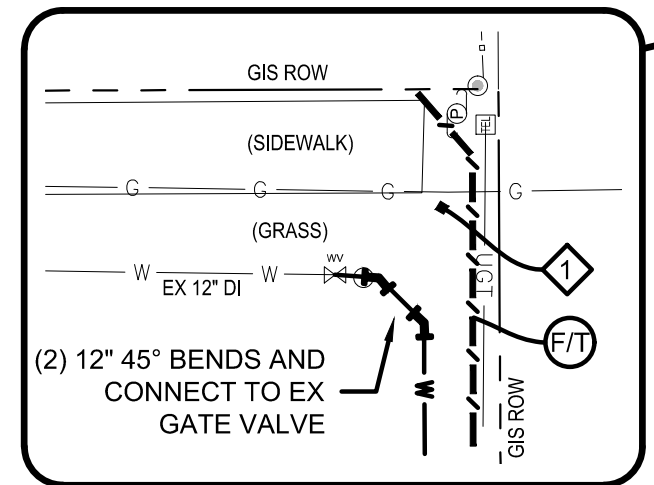
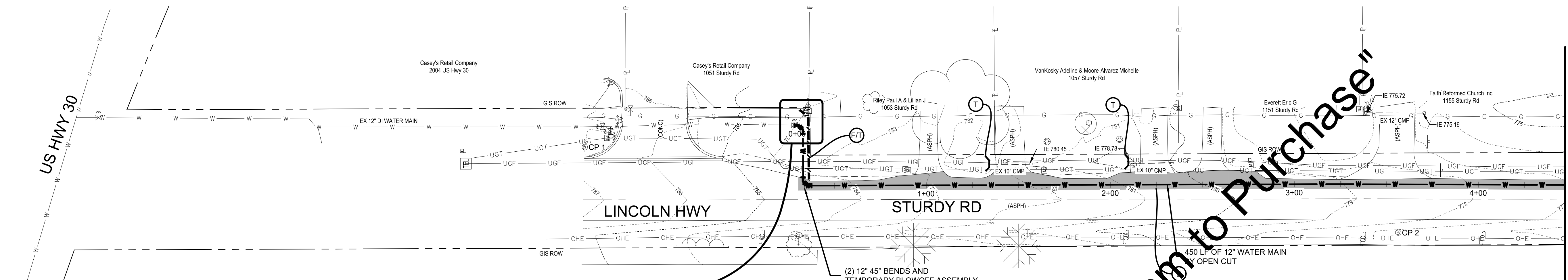
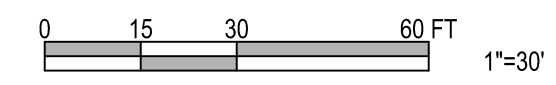
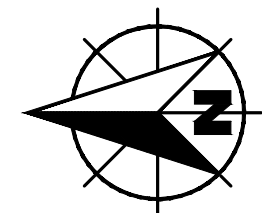


STURDY ROAD WATER MAIN EXTENSION

VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

LEGEND, ABBREVIATIONS AND GENERAL NOTES

SHEET NO.	03
TOTAL SHEETS	15



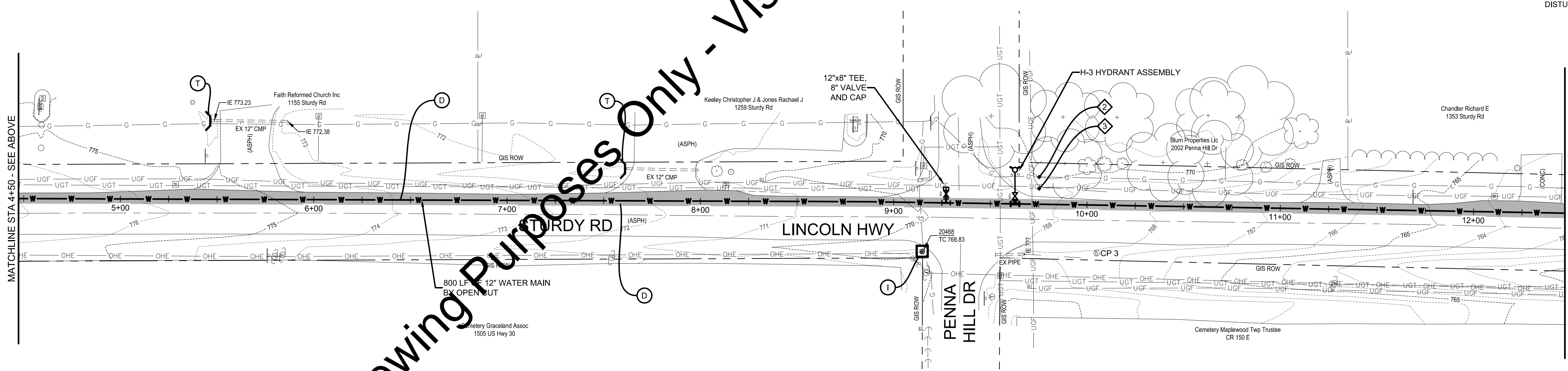
DETAIL PLAN
SCALE: 1" = 10'

PLAN - LINE A
SCALE: 1" = 30'

- POTHoles**
(ALL POTHOLE LOCATIONS, AT LEADER END, ARE APPROXIMATE)
- POTHOLE FOUND 4" GAS TO BE APPROX 3'-4" DEEP, AND PHONE TO BE APPROX 2'-0" DEEP.
 - POTHOLE FOUND GAS TO BE APPROX 3'-0" DEEP.
 - POTHOLE FOUND (2) FIBER LINES TO BE APPROX 4'-7" DEEP.

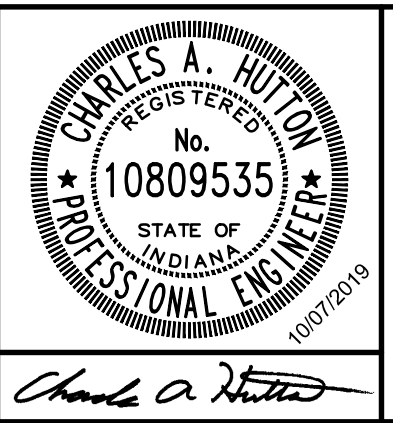
- LEGEND**
- SILT FENCE / FILTER TUBE
 - INLET PROTECTION
 - FIBER FILTRATION TUBE OUTLET PROTECTION
 - ASPHALT PAVEMENT REPAIR - DRIVEWAY
 - PAVEMENT REPAIR - ROADWAY MINIMUM 5' WIDTH
 - CRUSHED STONE DRIVE REPAIR

- KEYED NOTES**
- D ASPHALT PAVEMENT REPAIR (COUNTY HIGHWAY) AND FULL DEPTH GRANULAR BACKFILL
 - D₁ ASPHALT DRIVE REPAIR
 - N CRUSHED STONE SURFACE REPAIR
 - P_R APPROXIMATE LOCATION OF RECEIVING PIT (10'x10')
 - P_D APPROXIMATE LOCATION OF DRILL PIT (40'Lx20'W)
 - R REPAIR FENCE
 - S SUPPORT EXISTING UTILITY POLE AS NEEDED TO INSTALL NEW WATER MAIN AND AS REQUIRED BY UTILITY
 - TR₁ REMOVE TREE (>12" DIAMETER)
 - TR₂ REMOVE TREE (≤12" DIAMETER)
- EROSION CONTROL**
- I INLET PROTECTION
 - E EROSION CONTROL BLANKET
 - F/T SILT FENCE / FILTER TUBE
 - T FIBER FILTRATION TUBE OUTLET PROTECTION
 - W INSTALL SILT FENCE / FILTER TUBE AS CLOSE TO THE EXISTING ROADWAY AS POSSIBLE TO PREVENT DISTURBANCE TO WETLANDS.



PLAN - LINE A
SCALE: 1" = 30'

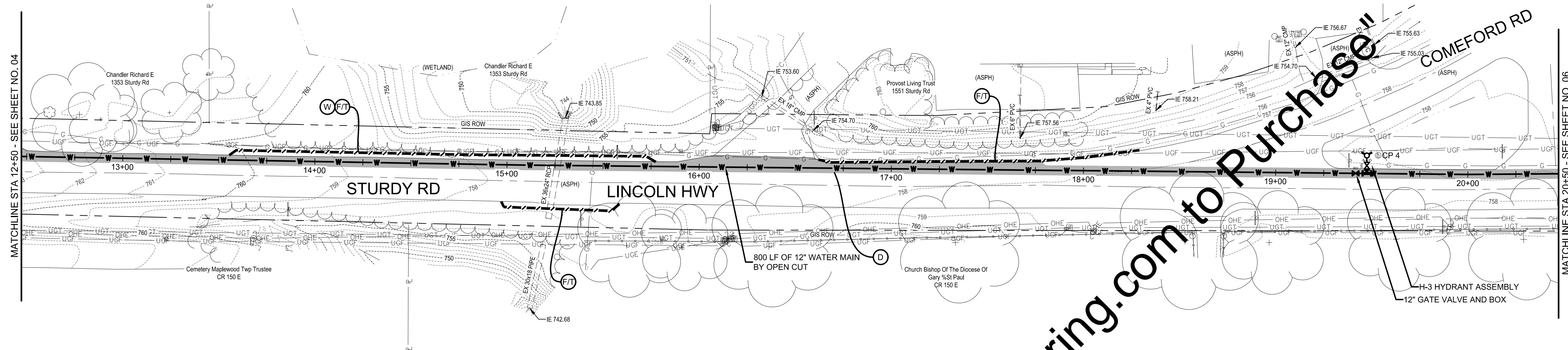
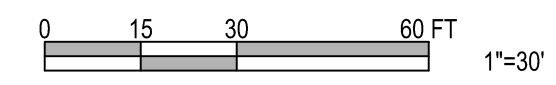
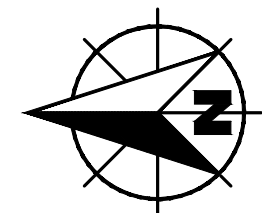
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	ISSUE DATE					
	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					



STURDY ROAD WATER MAIN EXTENSION
VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA
PLAN - LINE A
(0+00 TO 12+50)

SHEET NO.
04
TOTAL SHEETS
15

Drawing: J:\Valparaiso\Projects\208218_Valparaiso Water Loop\CAD 04-03\DWG\Sheets\208218-PP-A.dwg | Layout: PPD4 | Plotted: 10/03/19 @ 12:49:17 | LastSavedBy: MichelleE



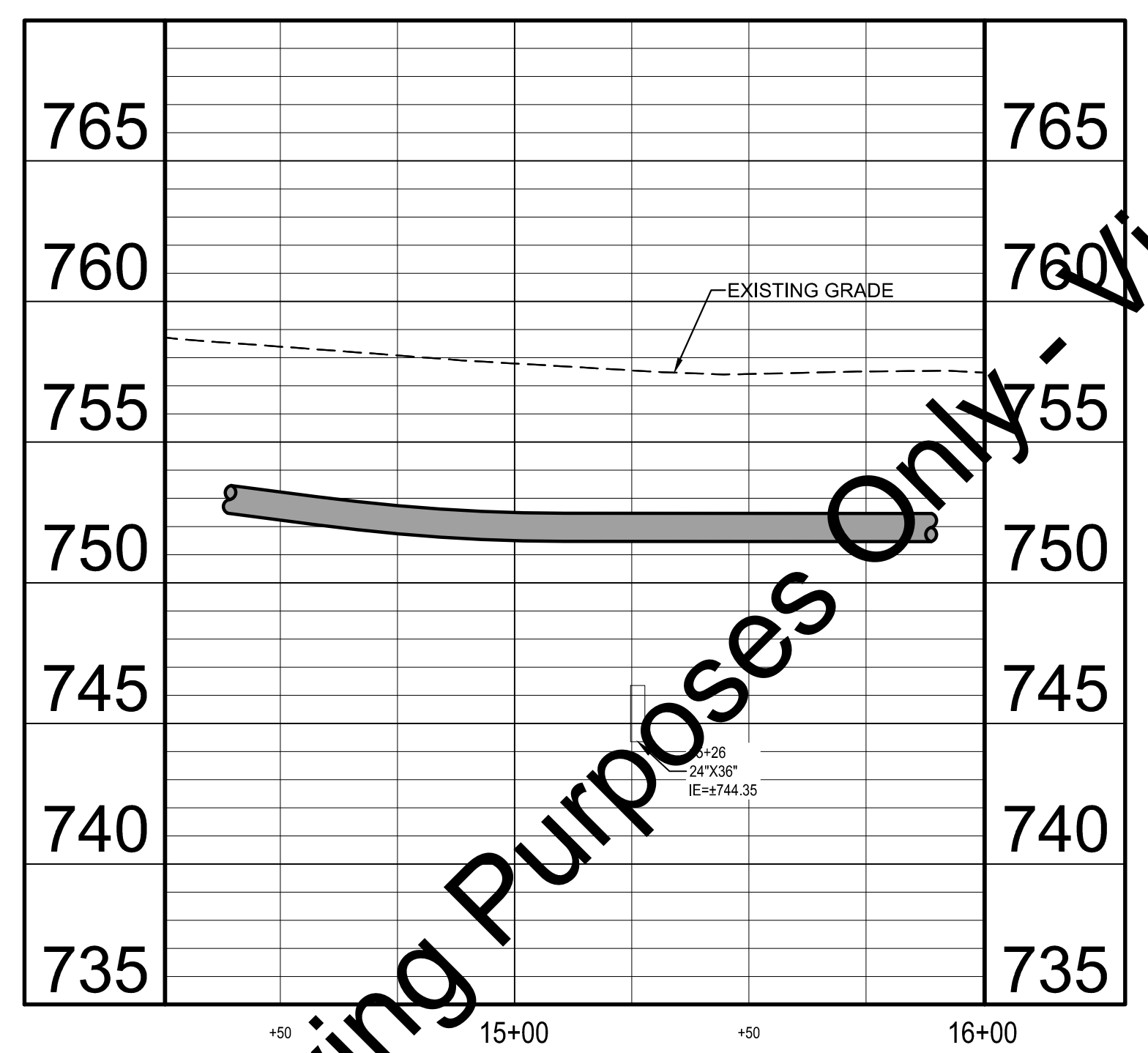
PLAN - LINE A
SCALE: 1" = 30'

LEGEND

- SILT FENCE / FILTER TUBE
- INLET PROTECTION
- FIBER FILTRATION TUBE OUTLET PROTECTION
- ASPHALT PAVEMENT REPAIR - DRIVEWAY
- PAVEMENT REPAIR - ROADWAY
MINIMUM 5' WIDTH
- CRUSHED STONE DRIVE REPAIR

KEYED NOTES

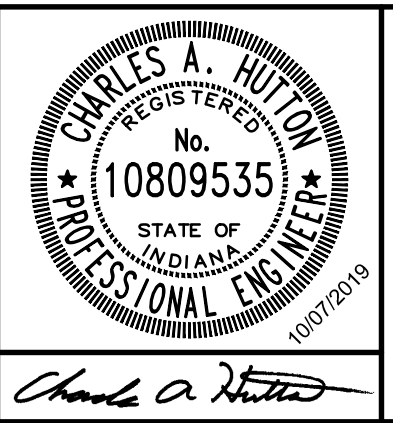
- D ASPHALT PAVEMENT REPAIR (COUNTY HIGHWAY) AND FULL DEPTH GRANULAR BACKFILL
- D₁ ASPHALT DRIVE REPAIR
- N CRUSHED STONE SURFACE REPAIR
- P_R APPROXIMATE LOCATION OF RECEIVING PIT (10'x10')
- P_D APPROXIMATE LOCATION OF DRILL PIT (40'Lx20'W)
- R REPAIR FENCE
- S SUPPORT EXISTING UTILITY POLE AS NEEDED TO INSTALL NEW WATER MAIN AND AS REQUIRED BY UTILITY
- TR₁ REMOVE TREE (>12" DIAMETER)
- TR₂ REMOVE TREE (≤12" DIAMETER)
- EROSION CONTROL**
- I INLET PROTECTION
- E EROSION CONTROL BLANKET
- F/T SILT FENCE / FILTER TUBE
- T FIBER FILTRATION TUBE OUTLET PROTECTION
- W INSTALL SILT FENCE / FILTER TUBE AS CLOSE TO THE EXISTING ROADWAY AS POSSIBLE TO PREVENT DISTURBANCE TO WETLANDS.



PROFILE - LINE A
HORIZ SCALE: 1" = 30'
VERT SCALE: 1" = 5'

Drawing: J:\Valparaiso\Projects\208218 Valparaiso Water Loop\CAD 04-003\DWG\Sheets\208218-PP-A.dwg | Layout: PPS | Printed: 10/03/19 @ 12:49:27 | LastSavedBy: MichaelE

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	ISSUE DATE	OCTOBER 2019				
	PROJECT NUMBER	208218-04-03				

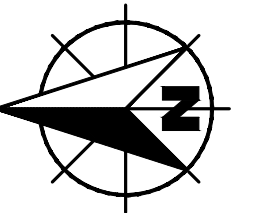


STURDY ROAD WATER MAIN EXTENSION
 VALPARAISO CITY UTILITIES
 VALPARAISO, INDIANA
PLAN - LINE A
(12+50 TO 20+50)

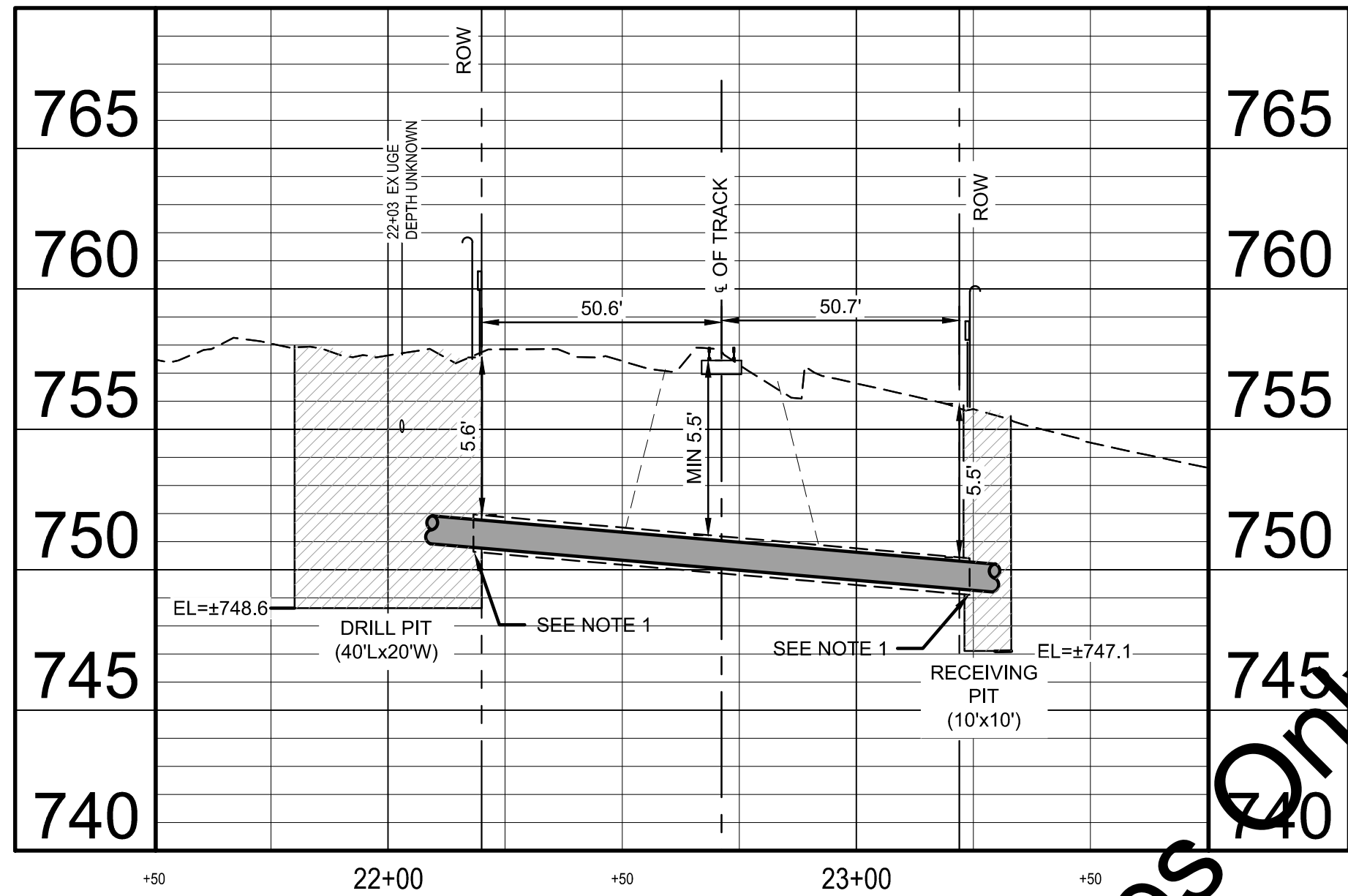
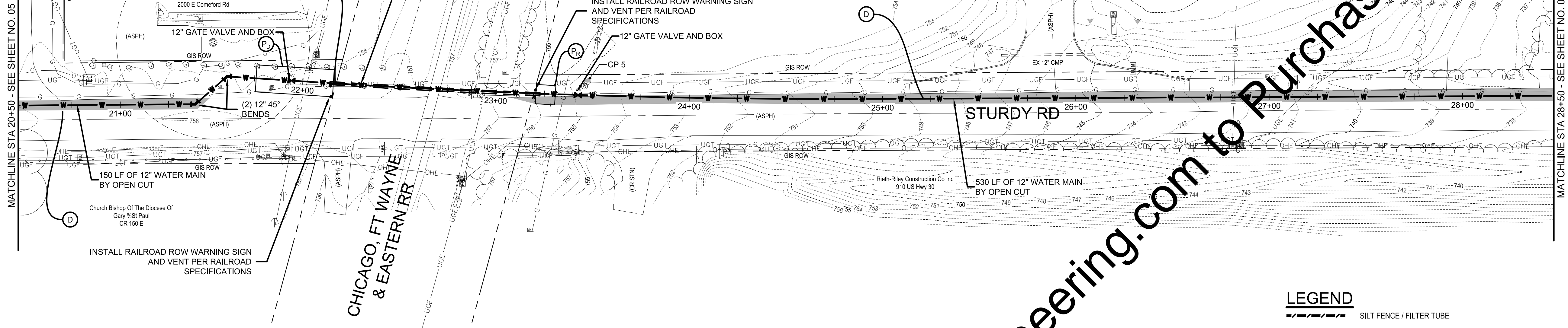
SHEET NO.	05
TOTAL SHEETS	15

COME FORD RD

MATCHLINE STA 20+50 - SEE SHEET NO. 05



0 15 30 60 FT
1"=30'



PROFILE - LINE A
HORIZ SCALE: 1" = 30'
VERT SCALE: 1" = 5'

PLAN - LINE A
SCALE: 1" = 30'

LEGEND

- SILT FENCE / FILTER TUBE
- INLET PROTECTION
- FIBER FILTRATION TUBE OUTLET PROTECTION
- ASPHALT PAVEMENT REPAIR - DRIVEWAY
- PAVEMENT REPAIR - ROADWAY MINIMUM 5' WIDTH
- CRUSHED STONE DRIVE REPAIR

POTHOLES

- (ALL POTHOLE LOCATIONS, AT LEADER END, ARE APPROXIMATE)
- 4 POTHOLE FOUND GAS TO BE APPROX 8" DEEP. FIBER NOT FIELD LOCATED.

KEYED NOTES

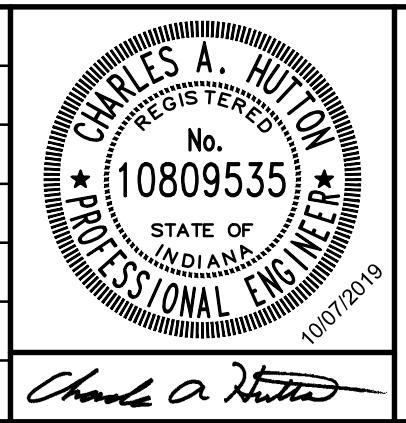
- D ASPHALT PAVEMENT REPAIR (COUNTY HIGHWAY) AND FULL DEPTH GRANULAR BACKFILL
- D₁ ASPHALT DRIVE REPAIR
- N CRUSHED STONE SURFACE REPAIR
- P_R APPROXIMATE LOCATION OF RECEIVING PIT (10'x10')
- P_D APPROXIMATE LOCATION OF DRILL PIT (40'x20'W)
- R REPAIR FENCE
- S SUPPORT EXISTING UTILITY POLE AS NEEDED TO INSTALL NEW WATER MAIN AND AS REQUIRED BY UTILITY
- TR₁ REMOVE TREE (>12" DIAMETER)
- TR₂ REMOVE TREE (≤12" DIAMETER)
- EROSION CONTROL**
- I INLET PROTECTION
- E EROSION CONTROL BLANKET
- F/T SILT FENCE / FILTER TUBE
- T FIBER FILTRATION TUBE OUTLET PROTECTION
- W INSTALL SILT FENCE / FILTER TUBE AS CLOSE TO THE EXISTING ROADWAY AS POSSIBLE TO PREVENT DISTURBANCE TO WETLANDS.

PLAN NOTES

1. CASING PIPE SHALL BE CONSTRUCTED AS TO PREVENT LEAKAGE OF ANY SUBSTANCE FROM THE CASING THROUGHOUT ITS LENGTH. CASING SHALL BE INSTALLED SO AS TO PREVENT THE FORMATION OF A WATERWAY UNDER THE RAILROAD, AND WITH AN EVEN BEARING THROUGHOUT ITS LENGTH, AND SLOPE TO ONE END.
2. THE FRONT OF THE CASING PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE.
3. CASING PIPE ENDS MUST BE SEALED WITH RUBBER BOOTS AND STAINLESS STEEL BAND CLAMPS.
4. PITS ARE TO BE PROPERLY DEWATERED PRIOR TO AND DURING INSTALLATION

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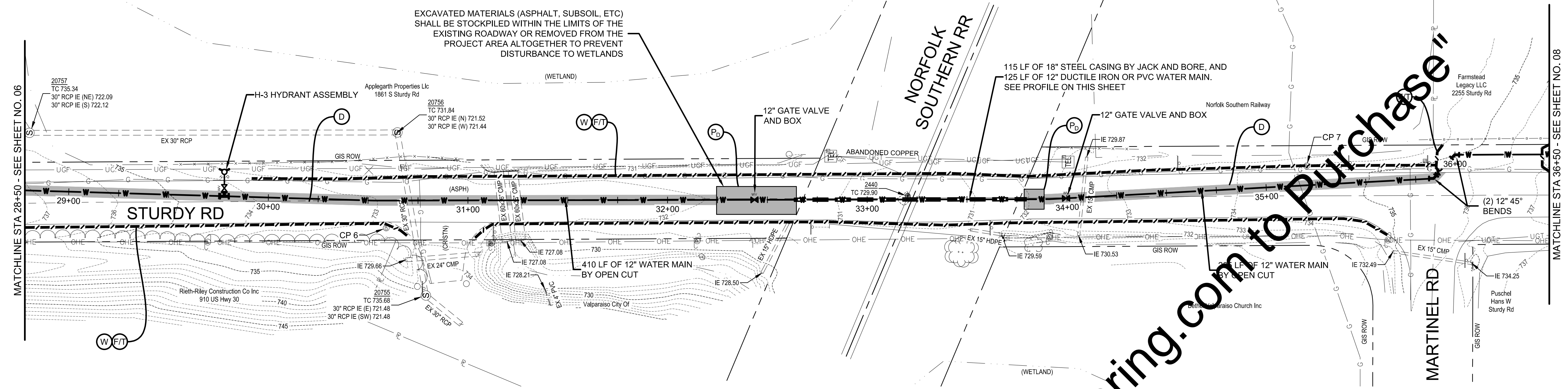
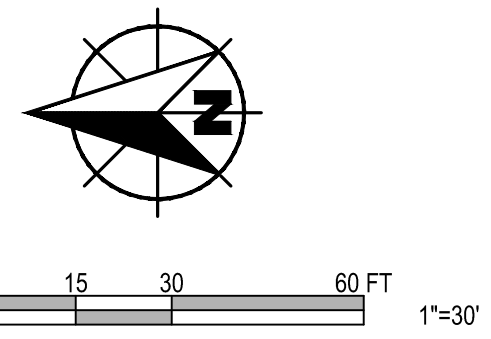
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	ISSUE DATE					
	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					



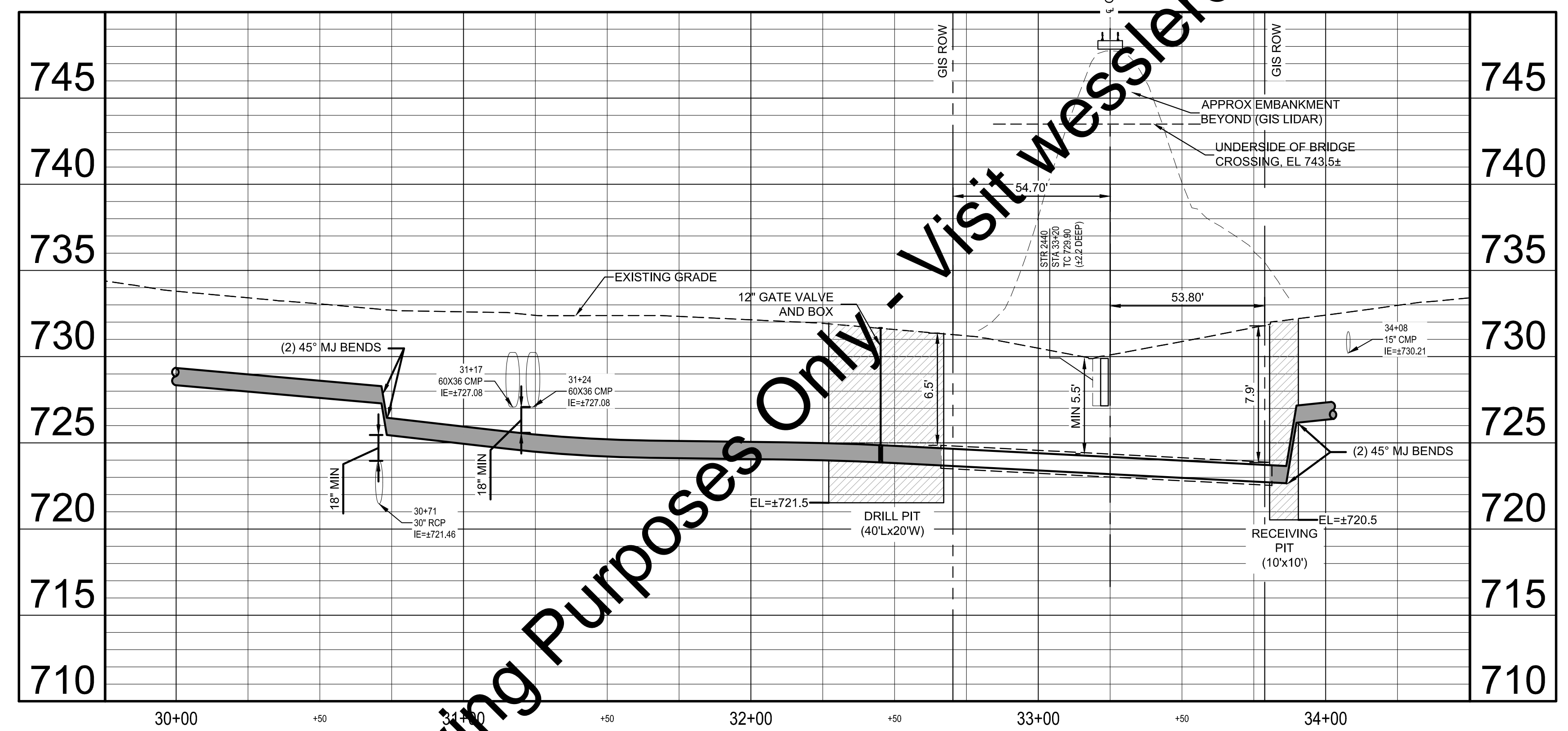
STURDY ROAD WATER MAIN EXTENSION
VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

PLAN AND PROFILE - LINE A
(20+50 TO 28+50)

SHEET NO.	06
TOTAL SHEETS	15



PLAN - LINE A
SCALE: 1" = 30'



PROFILE - LINE A
HORIZ SCALE: 1" = 30'
VERT SCALE: 1" = 5'

LEGEND

- SILTY FENCE / FILTER TUBE
- INLET PROTECTION
- FIBER FILTRATION TUBE OUTLET PROTECTION
- ASPHALT PAVEMENT REPAIR - DRIVEWAY
- PAVEMENT REPAIR - ROADWAY MINIMUM 5' WIDTH
- CRUSHED STONE DRIVE REPAIR

KEYED NOTES

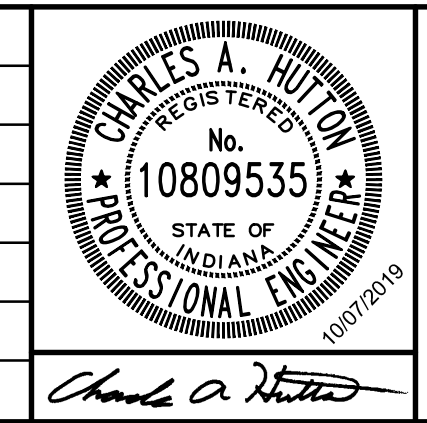
- D ASPHALT PAVEMENT REPAIR (COUNTY HIGHWAY) AND FULL DEPTH GRANULAR BACKFILL
 - D₁ ASPHALT DRIVE REPAIR
 - N CRUSHED STONE SURFACE REPAIR
 - P_R APPROXIMATE LOCATION OF RECEIVING PIT (10'x10')
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 - S SUPPORT EXISTING UTILITY POLE AS NEEDED TO INSTALL NEW WATER MAIN AND AS REQUIRED BY UTILITY
 - TR₁ REMOVE TREE (>12" DIAMETER)
 - TR₂ REMOVE TREE (≤12" DIAMETER)
- EROSION CONTROL**
- I INLET PROTECTION
 - E EROSION CONTROL BLANKET
 - F/T SILTY FENCE / FILTER TUBE
 - T FIBER FILTRATION TUBE OUTLET PROTECTION
 - W INSTALL SILTY FENCE / FILTER TUBE AS CLOSE TO THE EXISTING ROADWAY AS POSSIBLE TO PREVENT DISTURBANCE TO WETLANDS.

PLAN NOTES

1. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF NORFOLK SOUTHERN'S NSCE-8 SPECIFICATIONS
2. PIPELINE AND CROSSING TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH LAST APPROVED AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION SPECIFICATIONS FOR PIPELINES CONVEYING FLAMMABLE AND NON-FLAMMABLE SUBSTANCES
3. BLASTING NOT PERMITTED.

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	ISSUE DATE					
	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					

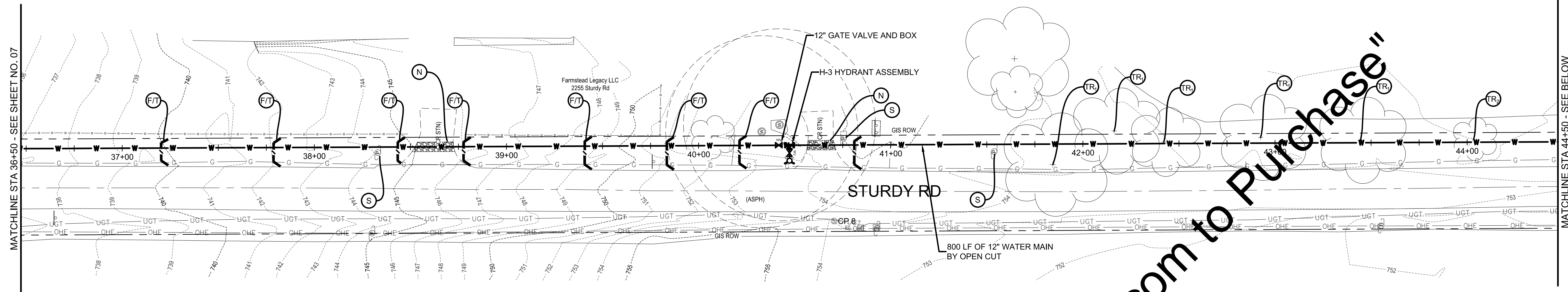
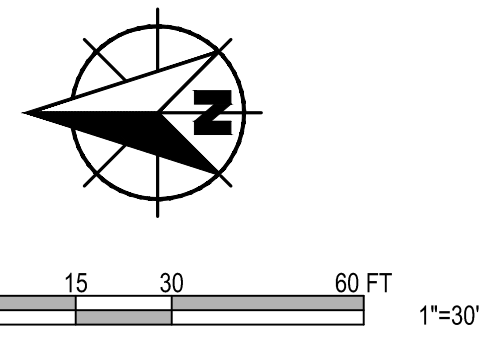


STURDY ROAD WATER MAIN EXTENSION
VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

PLAN AND PROFILE - LINE A
(28+50 TO 36+50)

SHEET NO.
07

TOTAL SHEETS
15



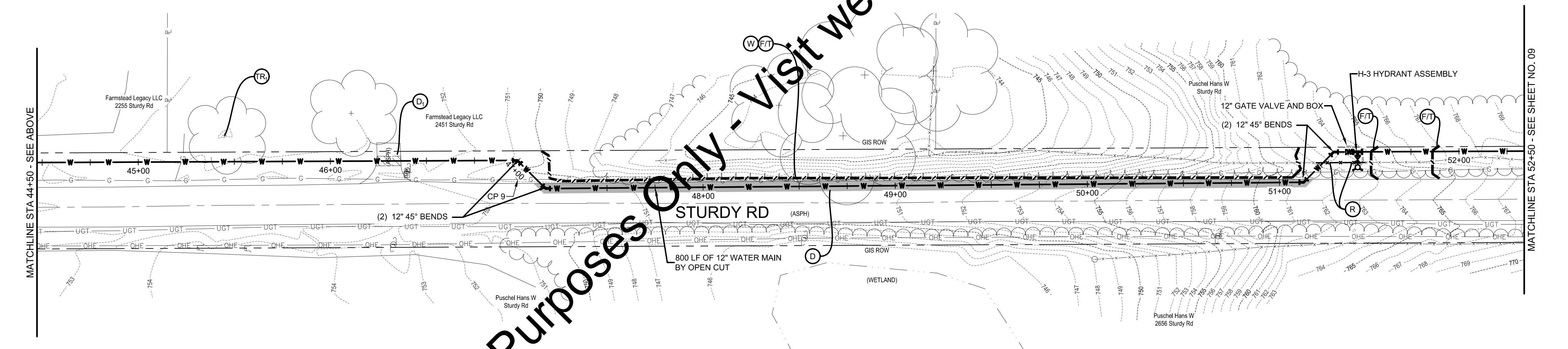
PLAN - LINE A
SCALE: 1" = 30'

LEGEND

	SILTY FENCE / FILTER TUBE
	INLET PROTECTION
	FIBER FILTRATION TUBE OUTLET PROTECTION
	ASPHALT PAVEMENT REPAIR - DRIVEWAY
	PAVEMENT REPAIR - ROADWAY MINIMUM 5' WIDTH
	CRUSHED STONE DRIVE REPAIR

KEYED NOTES

D	ASPHALT PAVEMENT REPAIR (COUNTY HIGHWAY) AND FULL DEPTH GRANULAR BACKFILL
D ₁	ASPHALT DRIVE REPAIR
N	CRUSHED STONE SURFACE REPAIR
P _R	APPROXIMATE LOCATION OF RECEIVING PIT (10'x10')
P _D	APPROXIMATE LOCATION OF DRILL PIT (40'Lx20'W)
R	REPAIR FENCE
S	SUPPORT EXISTING UTILITY POLE AS NEEDED TO INSTALL NEW WATER MAIN AND AS REQUIRED BY UTILITY
TR ₁	REMOVE TREE (>12" DIAMETER)
TR ₂	REMOVE TREE (≤12" DIAMETER)
EROSION CONTROL	
I	INLET PROTECTION
E	EROSION CONTROL BLANKET
F/T	SILTY FENCE / FILTER TUBE
T	FIBER FILTRATION TUBE OUTLET PROTECTION
W	INSTALL SILTY FENCE / FILTER TUBE AS CLOSE TO THE EXISTING ROADWAY AS POSSIBLE TO PREVENT DISTURBANCE TO WETLANDS.

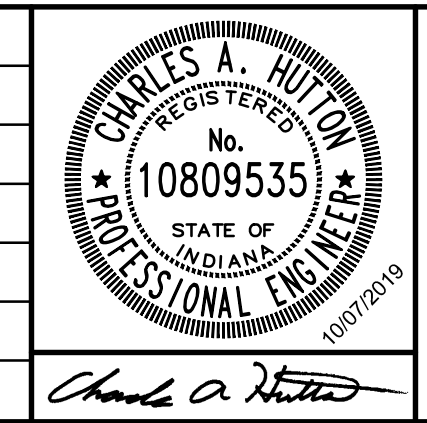


PLAN - LINE A
SCALE: 1" = 30'

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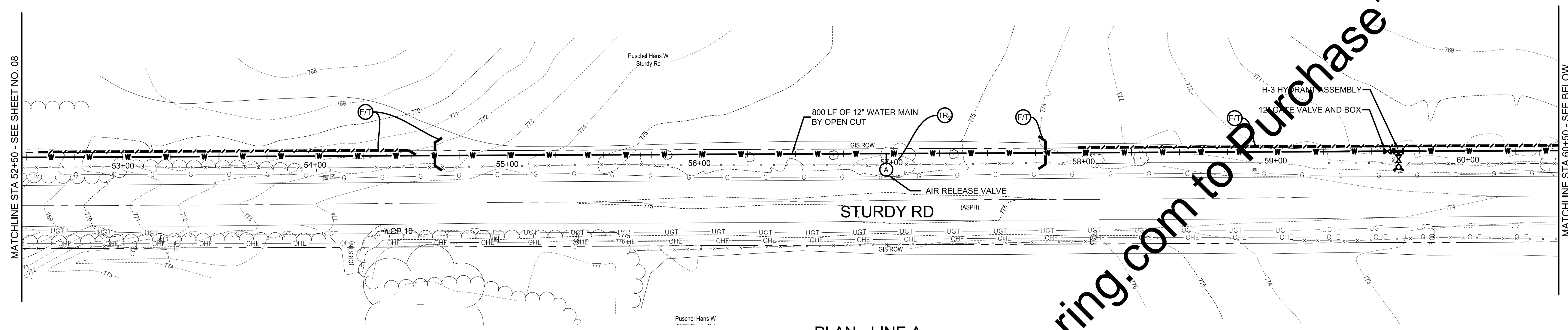
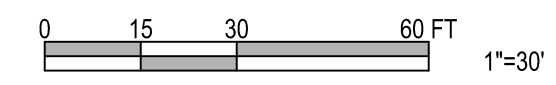
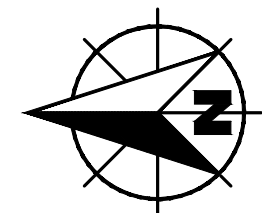
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	ISSUE DATE	OCTOBER 2019				
	PROJECT NUMBER	208218-04-03				



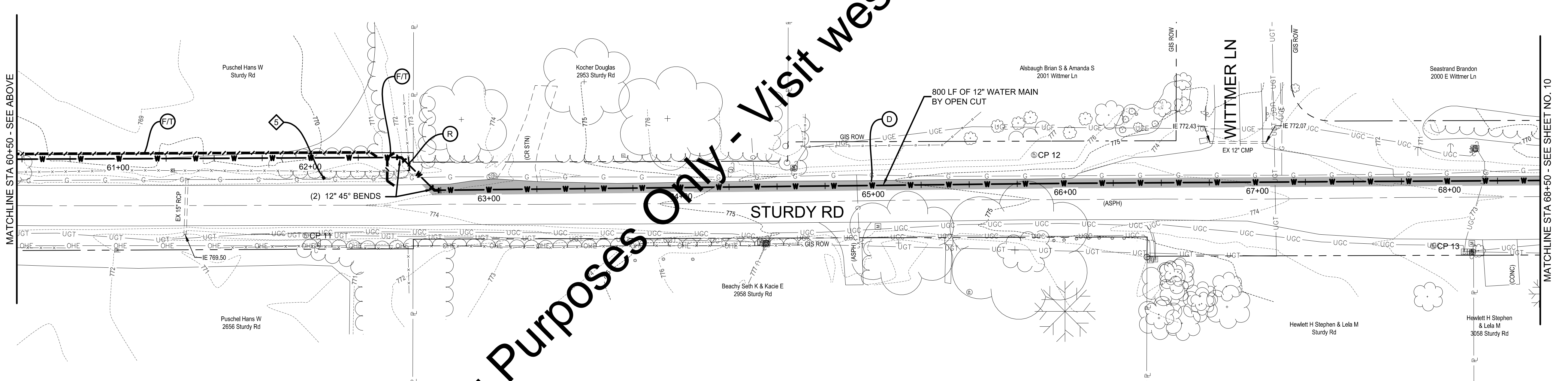
STURDY ROAD WATER MAIN EXTENSION
VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

PLAN - LINE A
(36+50 TO 52+50)

SHEET NO.	08
TOTAL SHEETS	15



PLAN - LINE A
SCALE: 1" = 30'



PLAN - LINE A
SCALE: 1" = 30'

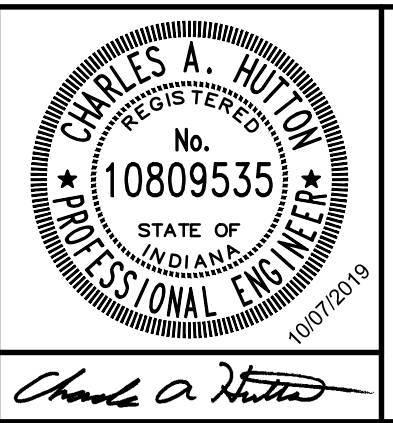
- POTHOLES**
- ALL POTHOLE LOCATIONS, AT LEADER END, ARE APPROXIMATE)
 - 5 POTHOLE FOUND FIBER TO BE APPROX 3'-6" DEEP, AND GAS TO BE APPROX 3'-4" DEEP

- LEGEND**
- SILT FENCE / FILTER TUBE
 - INLET PROTECTION
 - FIBER FILTRATION TUBE OUTLET PROTECTION
 - ASPHALT PAVEMENT REPAIR - DRIVEWAY
 - PAVEMENT REPAIR - ROADWAY MINIMUM 5' WIDTH
 - CRUSHED STONE DRIVE REPAIR

- KEYED NOTES**
- D ASPHALT PAVEMENT REPAIR (COUNTY HIGHWAY) AND FULL DEPTH GRANULAR BACKFILL
 - D₁ ASPHALT DRIVE REPAIR
 - N CRUSHED STONE SURFACE REPAIR
 - P_r APPROXIMATE LOCATION OF RECEIVING PIT (10'x10')
 - P_d APPROXIMATE LOCATION OF DRILL PIT (40'Lx20'W)
 - R REPAIR FENCE
 - S SUPPORT EXISTING UTILITY POLE AS NEEDED TO INSTALL NEW WATER MAIN AND AS REQUIRED BY UTILITY
 - TR₁ REMOVE TREE (>12" DIAMETER)
 - TR₂ REMOVE TREE (≤12" DIAMETER)
- EROSION CONTROL**
- I INLET PROTECTION
 - E EROSION CONTROL BLANKET
 - F/T SILT FENCE / FILTER TUBE
 - T FIBER FILTRATION TUBE OUTLET PROTECTION
 - W INSTALL SILT FENCE / FILTER TUBE AS CLOSE TO THE EXISTING ROADWAY AS POSSIBLE TO PREVENT DISTURBANCE TO WETLANDS.

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	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					



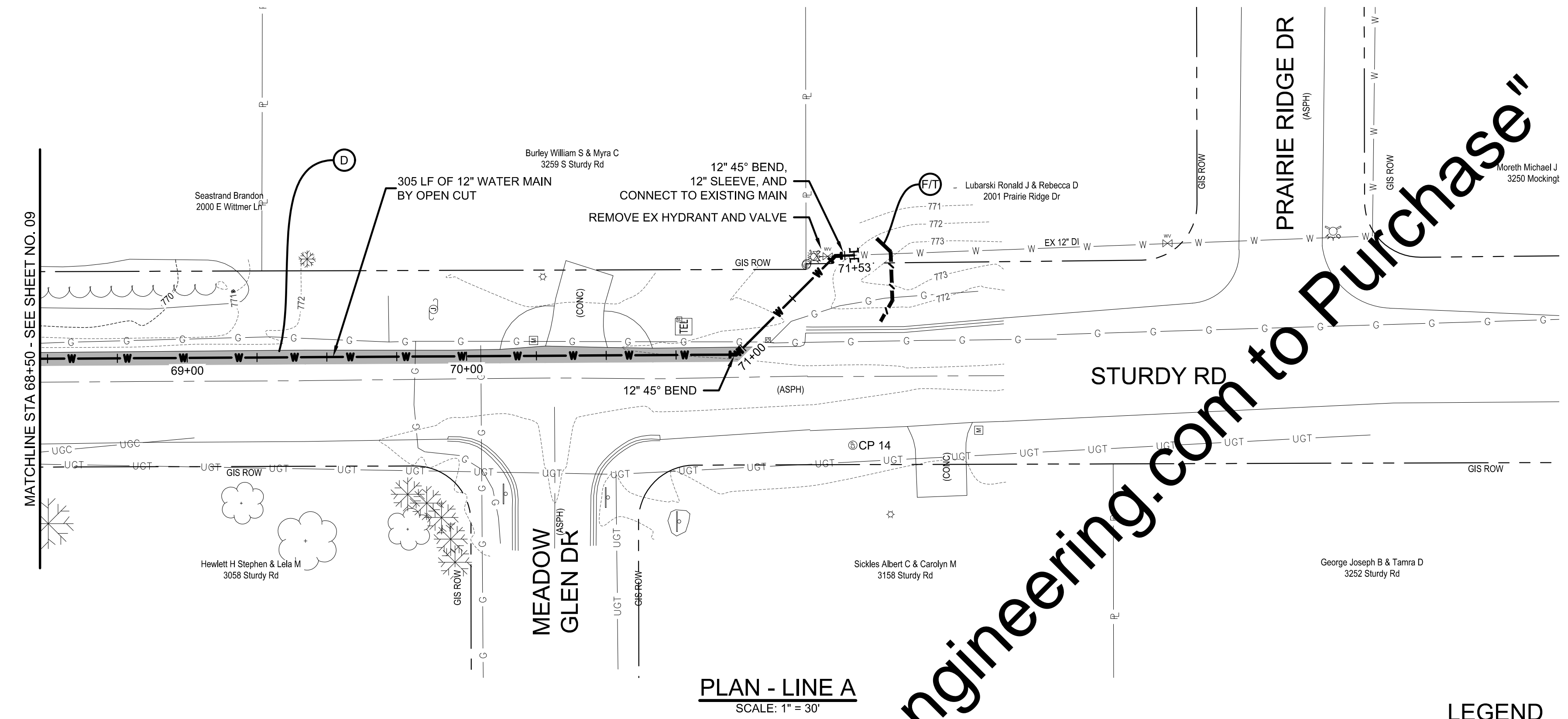
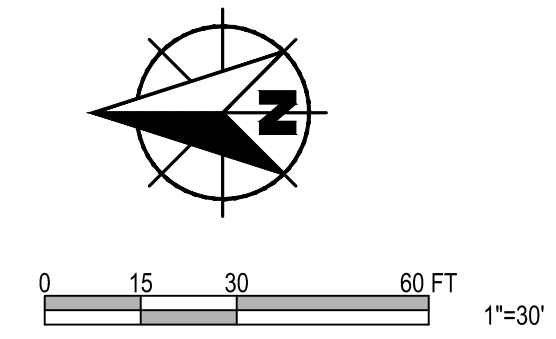
STURDY ROAD WATER MAIN EXTENSION

VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

PLAN - LINE A
(52+50 TO 68+50)

SHEET NO.
09

TOTAL SHEETS
15



PLAN - LINE A
SCALE: 1" = 30'

LEGEND

- SILT FENCE / FILTER TUBE
- INLET PROTECTION
- FIBER FILTRATION TUBE OUTLET PROTECTION
- ASPHALT PAVEMENT REPAIR - DRIVEWAY
- PAVEMENT REPAIR - ROADWAY MINIMUM 5' WIDTH
- CRUSHED STONE DRIVE REPAIR

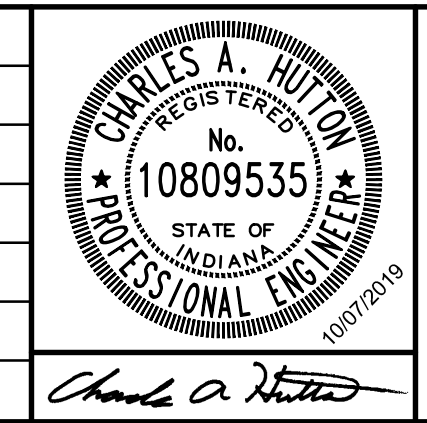
KEYED NOTES

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- TR₁ REMOVE TREE (>12" DIAMETER)
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- EROSION CONTROL**
- I INLET PROTECTION
- E EROSION CONTROL BLANKET
- F/T SILT FENCE / FILTER TUBE
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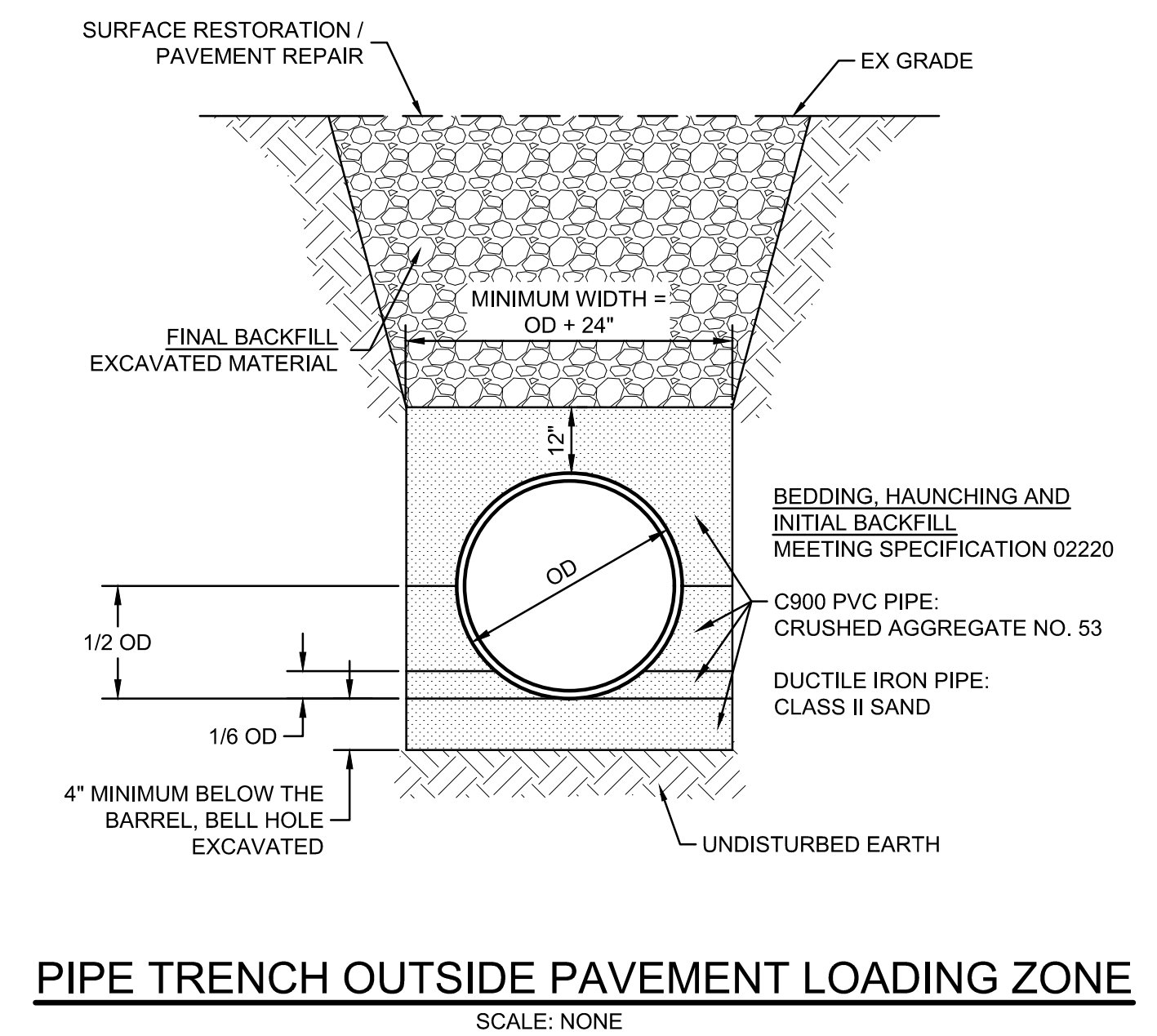
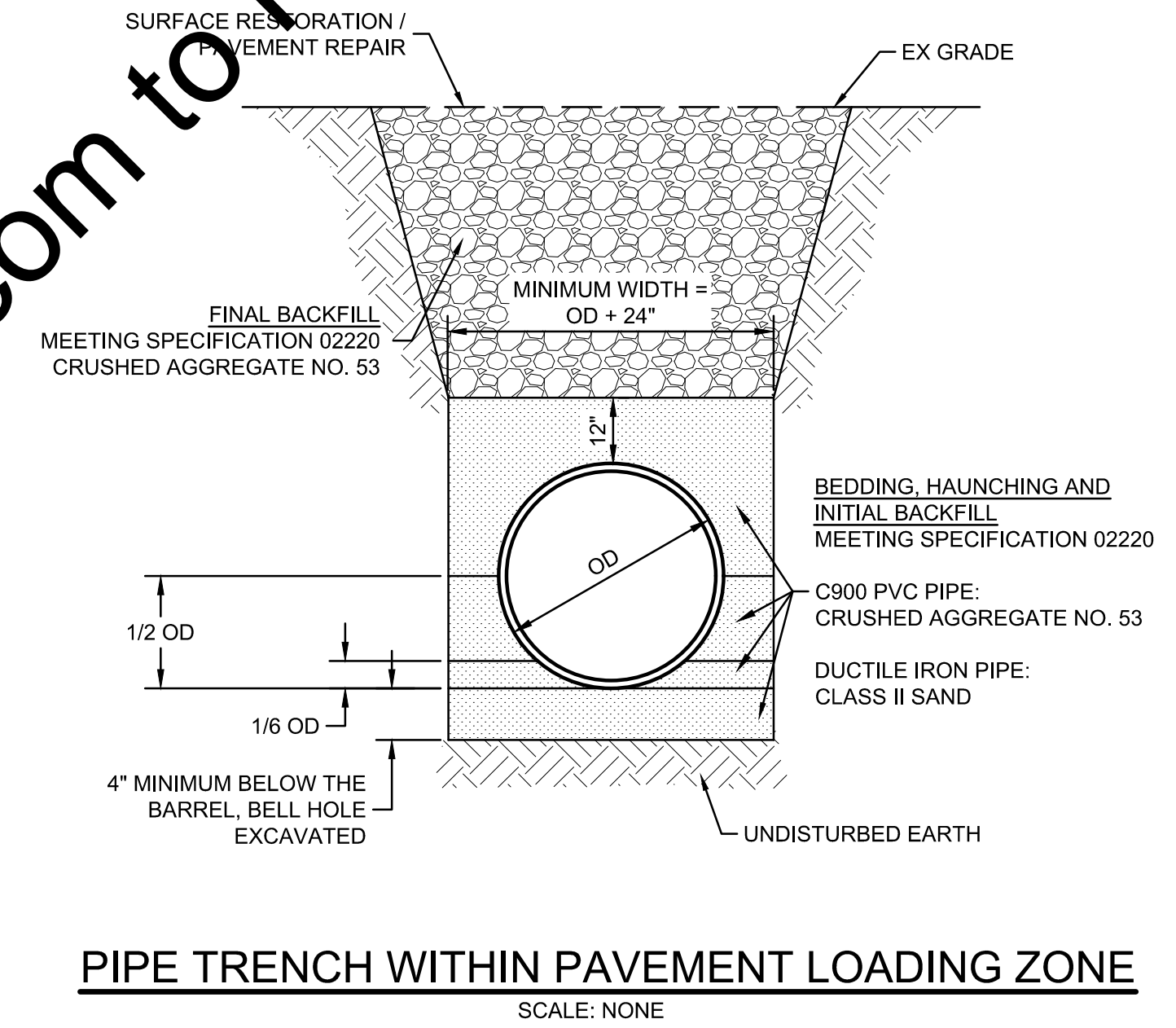
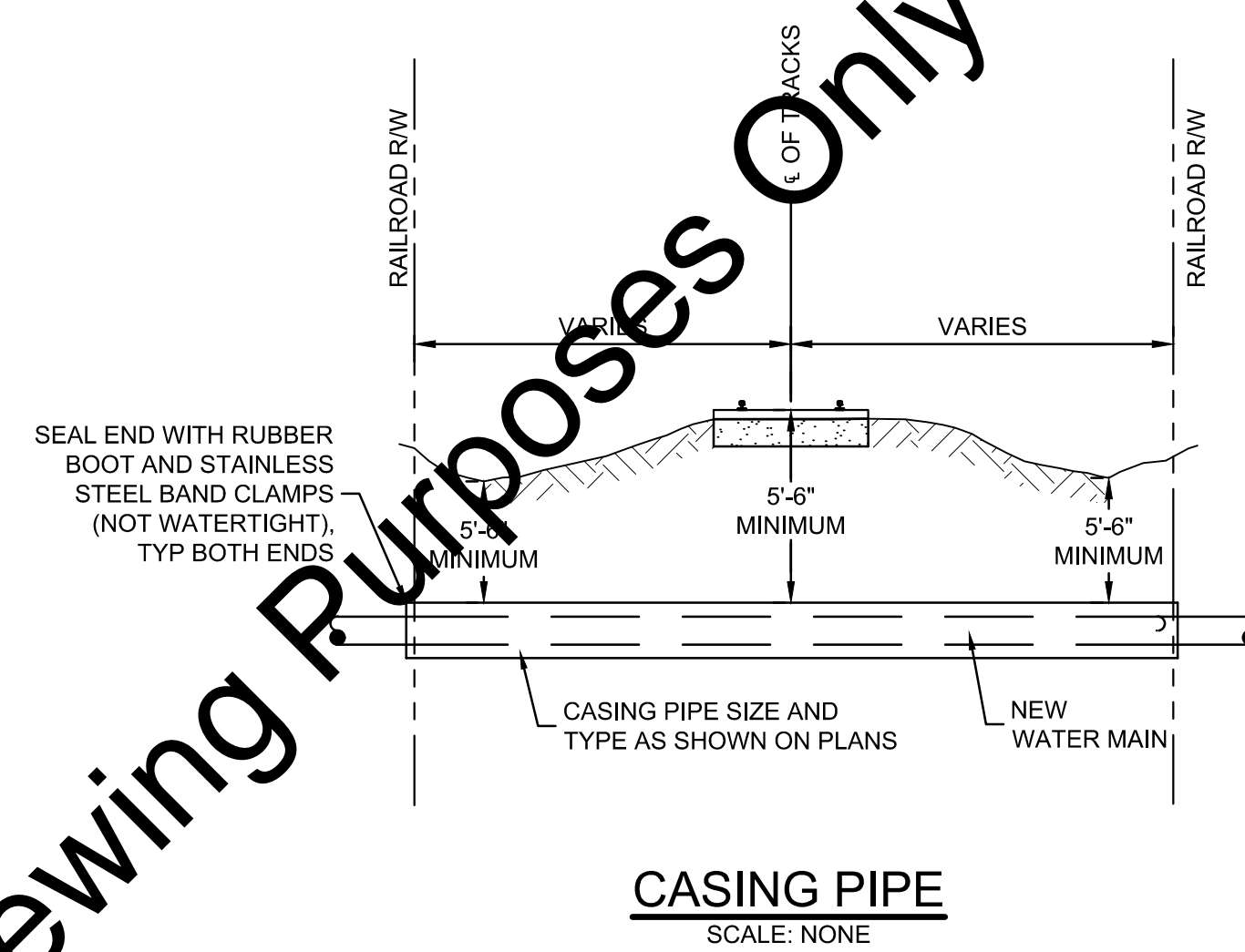
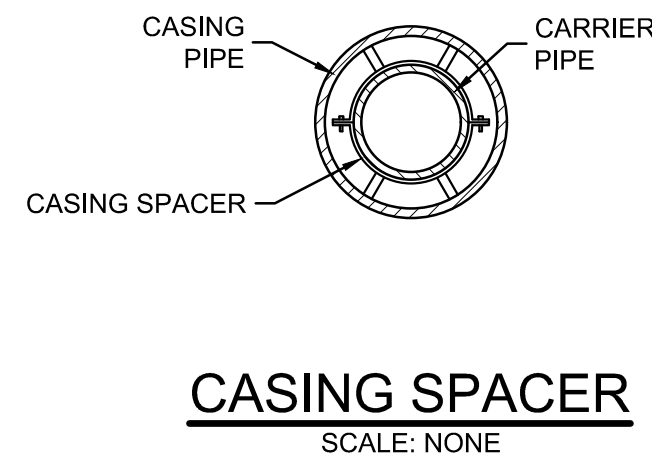
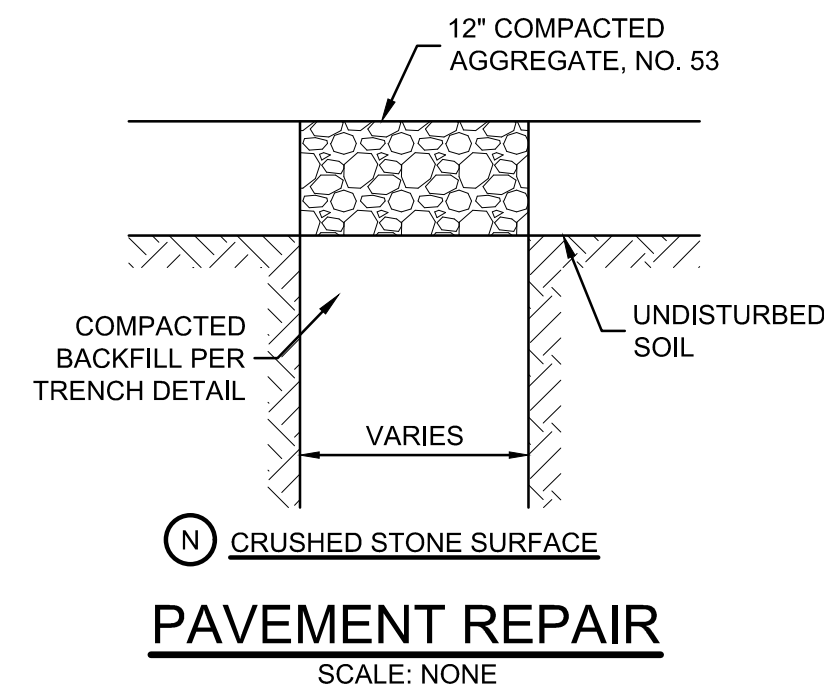
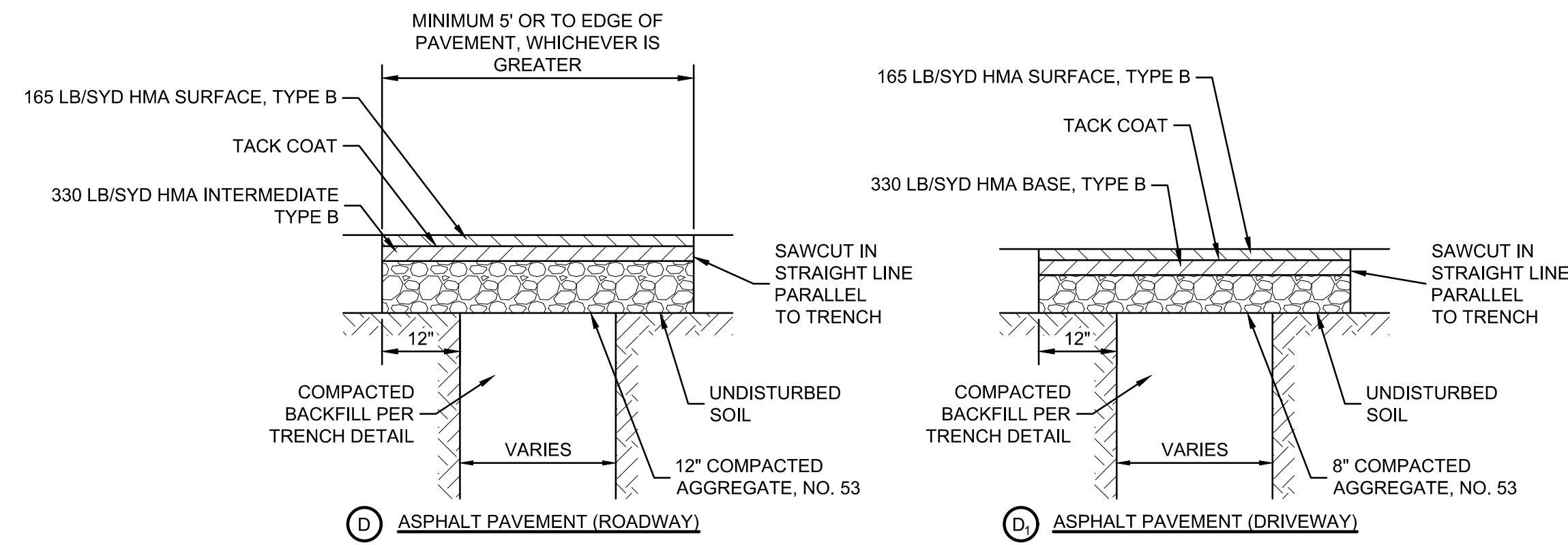
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	PROJECT NUMBER 208218-04-03				



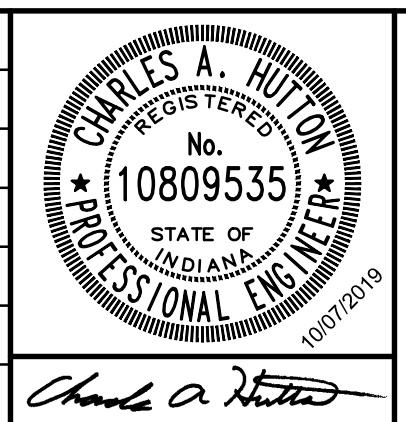
STURDY ROAD WATER MAIN EXTENSION
 VALPARAISO CITY UTILITIES
 VALPARAISO, INDIANA

**PLAN - LINE A
 (68+50 TO END)**

SHEET NO. <h1 style="margin: 0;">10</h1>
TOTAL SHEETS <h1 style="margin: 0;">15</h1>



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	APPROVED BY	CAH				
	ISSUE DATE	OCTOBER 2019				
	PROJECT NUMBER	208218-04-03				

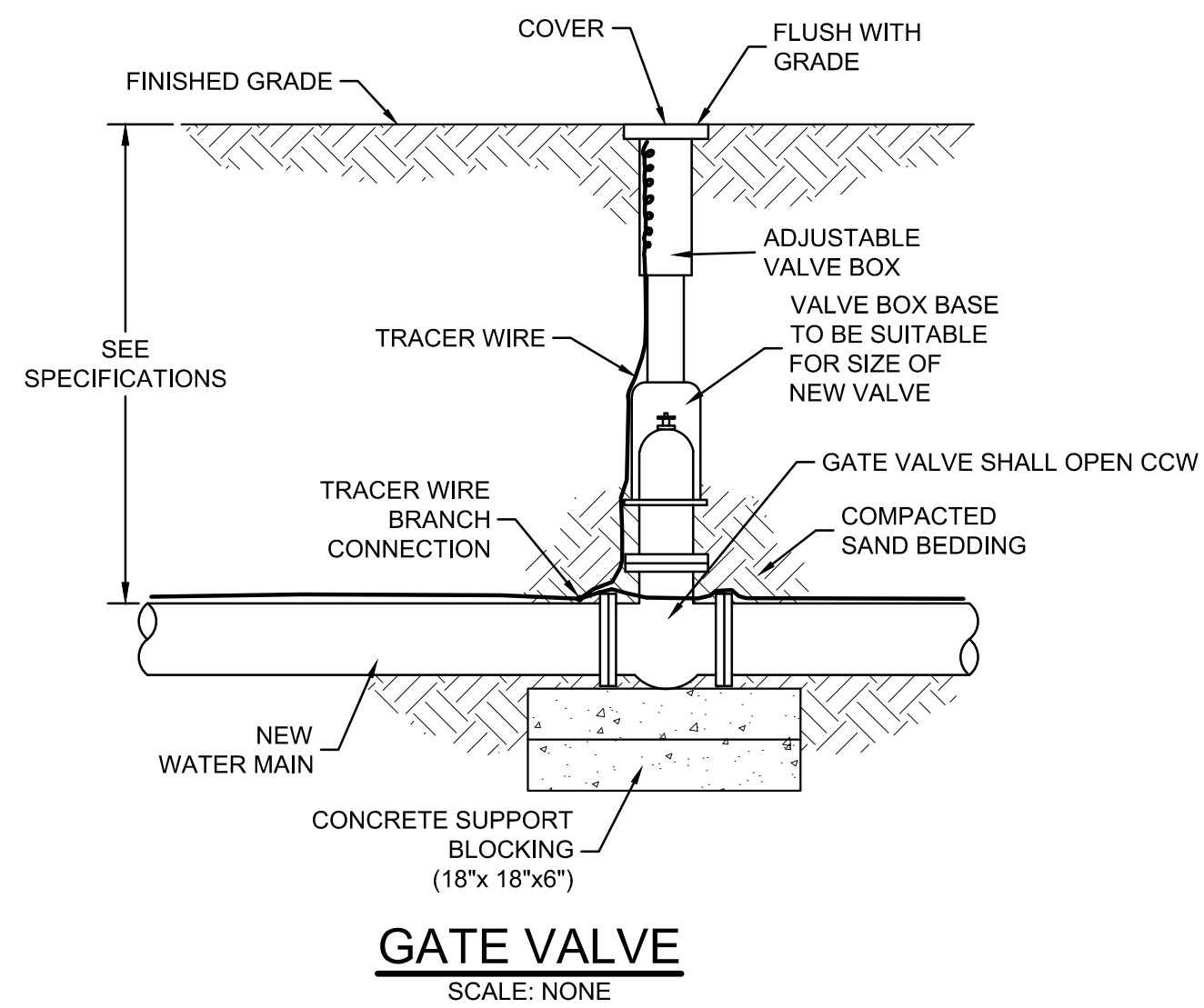


STURDY ROAD WATER MAIN EXTENSION
 VALPARAISO CITY UTILITIES
 VALPARAISO, INDIANA

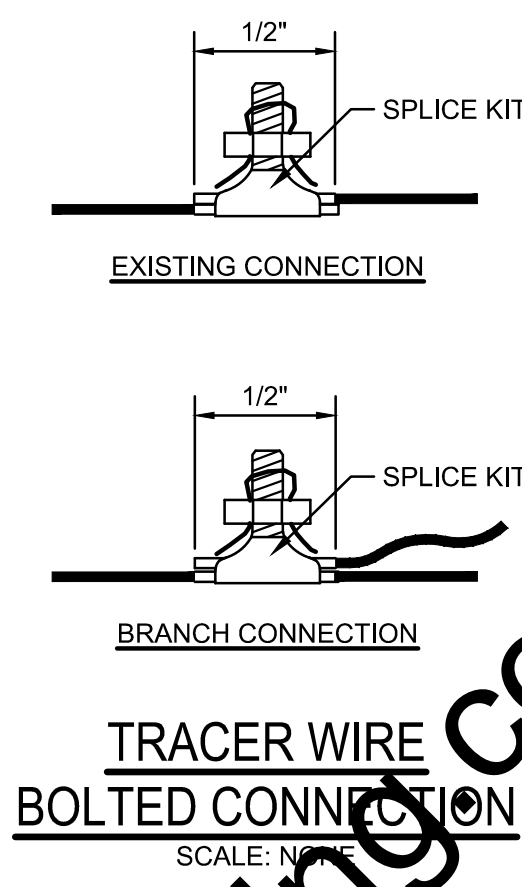
MISCELLANEOUS DETAILS

SHEET NO.	11
TOTAL SHEETS	15

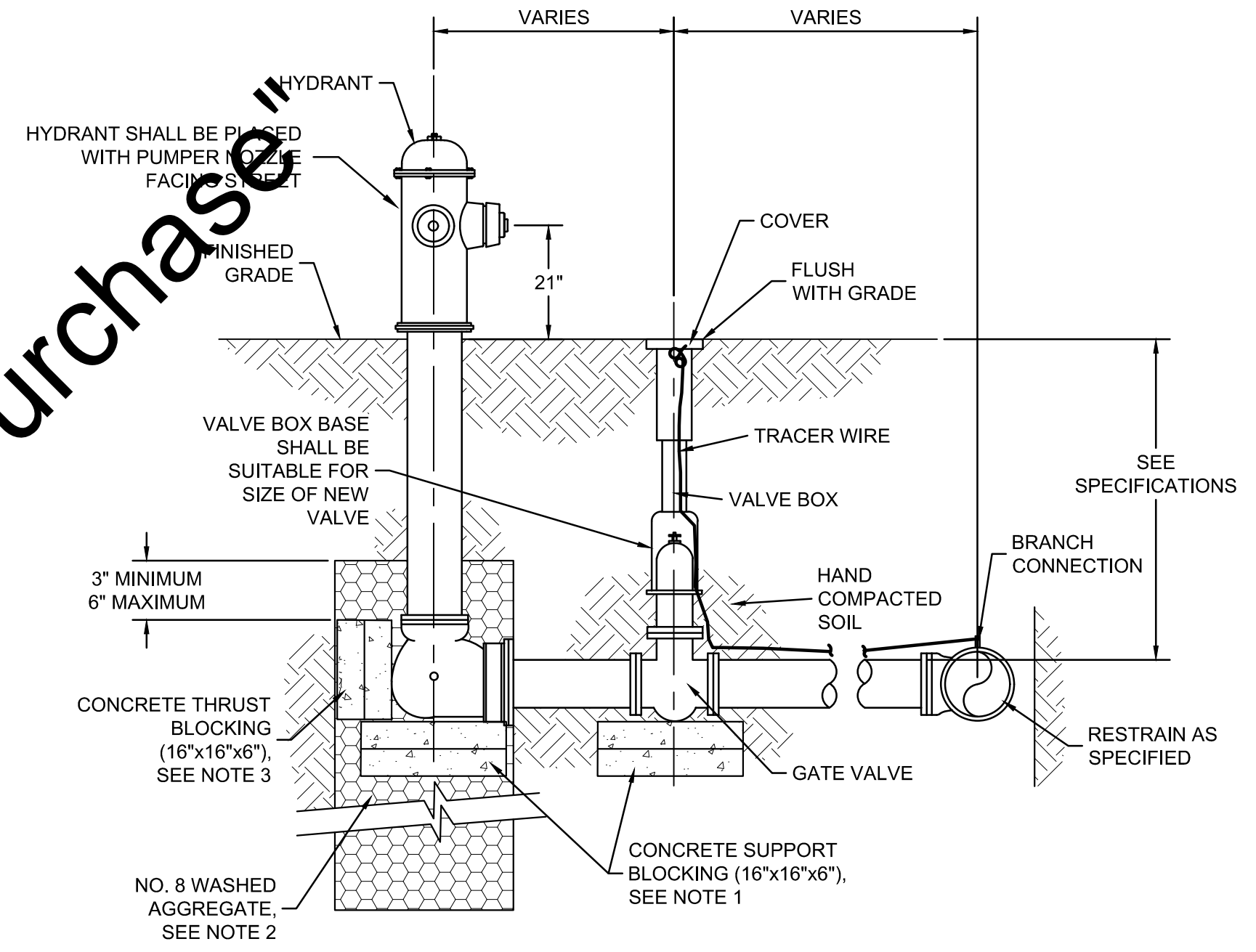
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GATE VALVE
SCALE: NONE



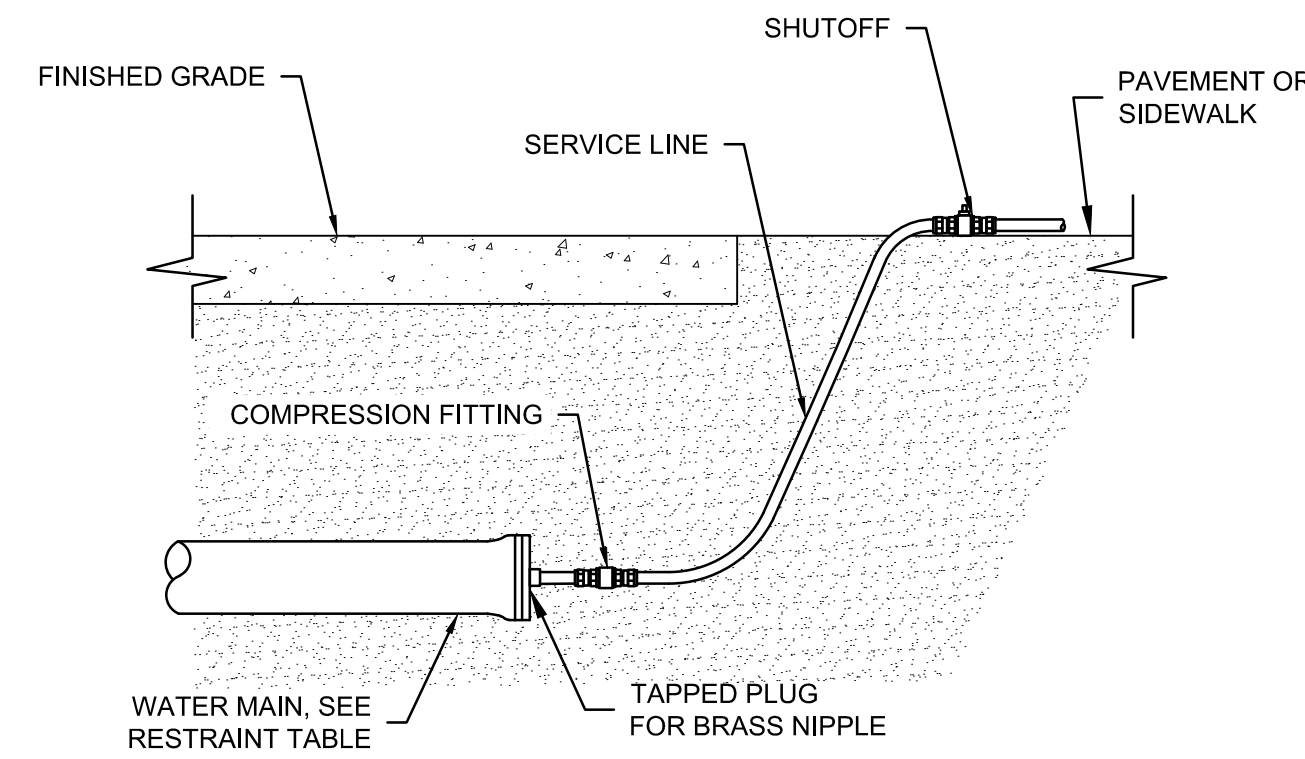
TRACER WIRE BOLTED CONNECTION
SCALE: NONE



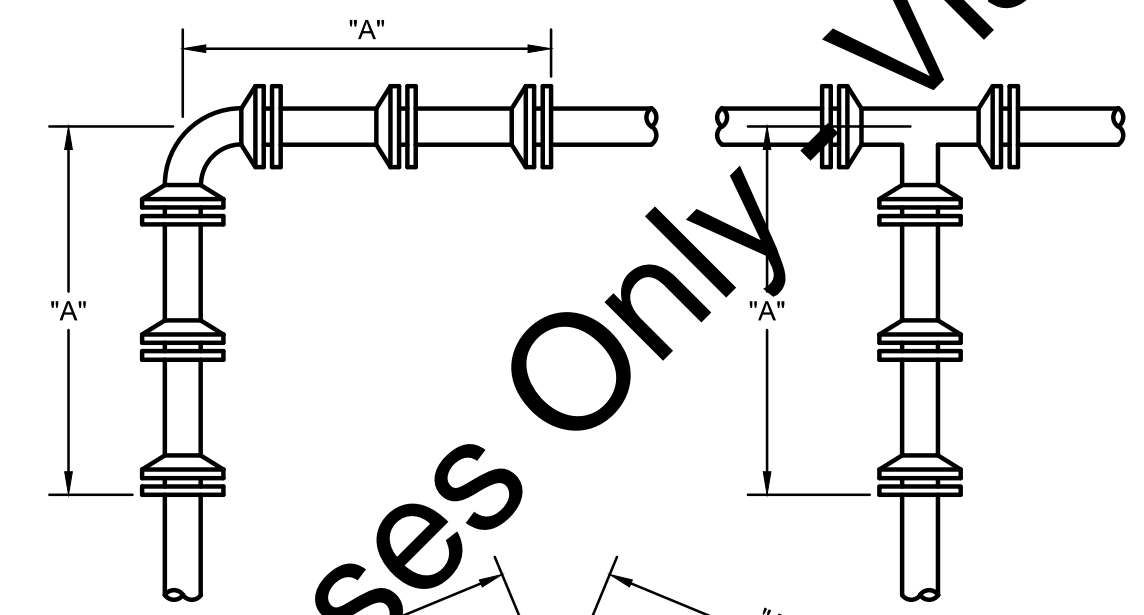
- NOTES:**
1. SET HYDRANT AND VALVE ON CONCRETE SUPPORT BLOCKING.
 2. PLACE 2'x3' DEEP DRAINAGE PIT. EXTEND A MINIMUM OF 3", AND MAXIMUM OF 6", ABOVE HYDRANT BOOT.
 3. RESTRAINED FITTINGS SHALL BE USED IN ADDITION TO CONCRETE THRUST BLOCKING. RESTRAINTS MUST BE USED FROM THE DISTRIBUTION MAIN TO THE HYDRANT. PLACE CONCRETE BLOCKS BEHIND HYDRANT TO UNDISTURBED EARTH.
 4. VALVE BOX SHALL BE CENTERED AND PLUMB OVER VALVE OPERATING NUT.

HYDRANT ASSEMBLY
SCALE: NONE

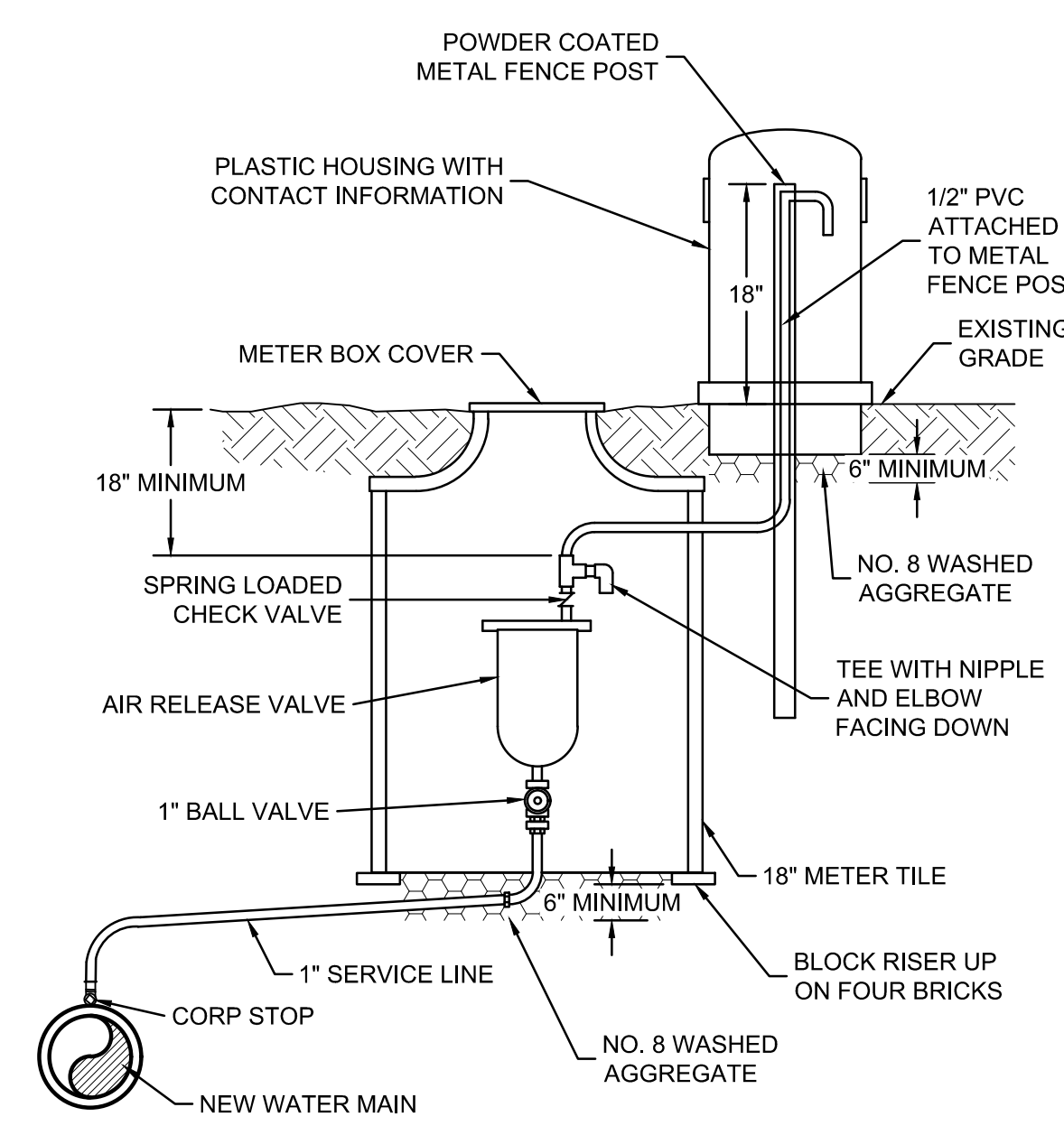
FEET OF RESTRAINED PIPE @ 150 PSI (A) ON EACH SIDE OF FITTING	
FITTING TYPE	WATER MAIN SIZE 12"
11 1/4° HORIZ BEND	4
22 1/2° HORIZ BEND	7
45° HORIZ BEND	14
90° HORIZ BEND	34
11 1/4° VERT BEND	8
22 1/2° VERT BEND	15
45° VERT BEND	31
90° VERT BEND	75
TEE OUTLET	0
VALVE OR PLUG	38
DEAD END	38



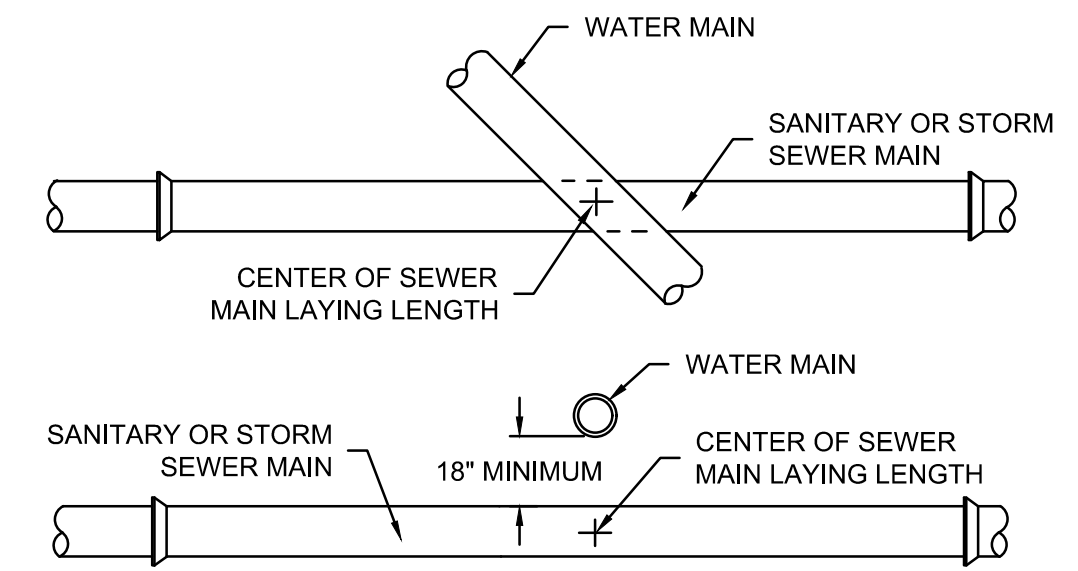
TEMPORARY BLOW-OFF ASSEMBLY
SCALE: NONE



WATER MAIN RESTRAINED PIPING
SCALE: NONE



AIR RELEASE VALVE
SCALE: NONE

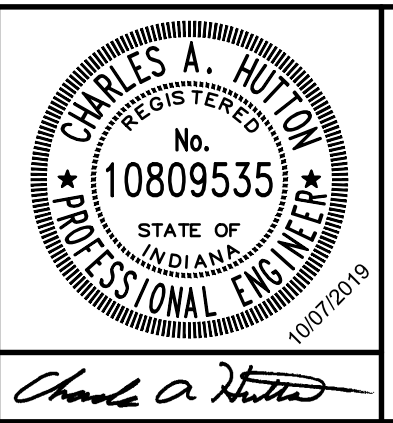


- NOTES:**
1. WATER MAIN AND SEWER MINIMUM SEPARATION: 18" VERTICAL SEPARATION 10'-0" HORIZONTAL SEPARATION.
 2. WHERE WATER MAIN AND SEWER SEPARATION IS LESS THAN 18" VERTICAL OR 10' HORIZONTAL, THE SEWER MUST BE DUCTILE IRON, SDR-21 PVC, OR CONCRETE ENCASED.

MINIMUM CROSSOVER AND SEPARATION REQUIREMENTS FOR SEWER AND WATER MAINS
SCALE: NONE

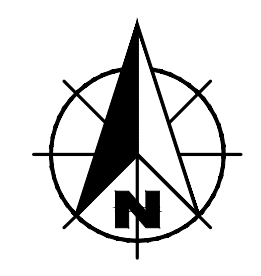
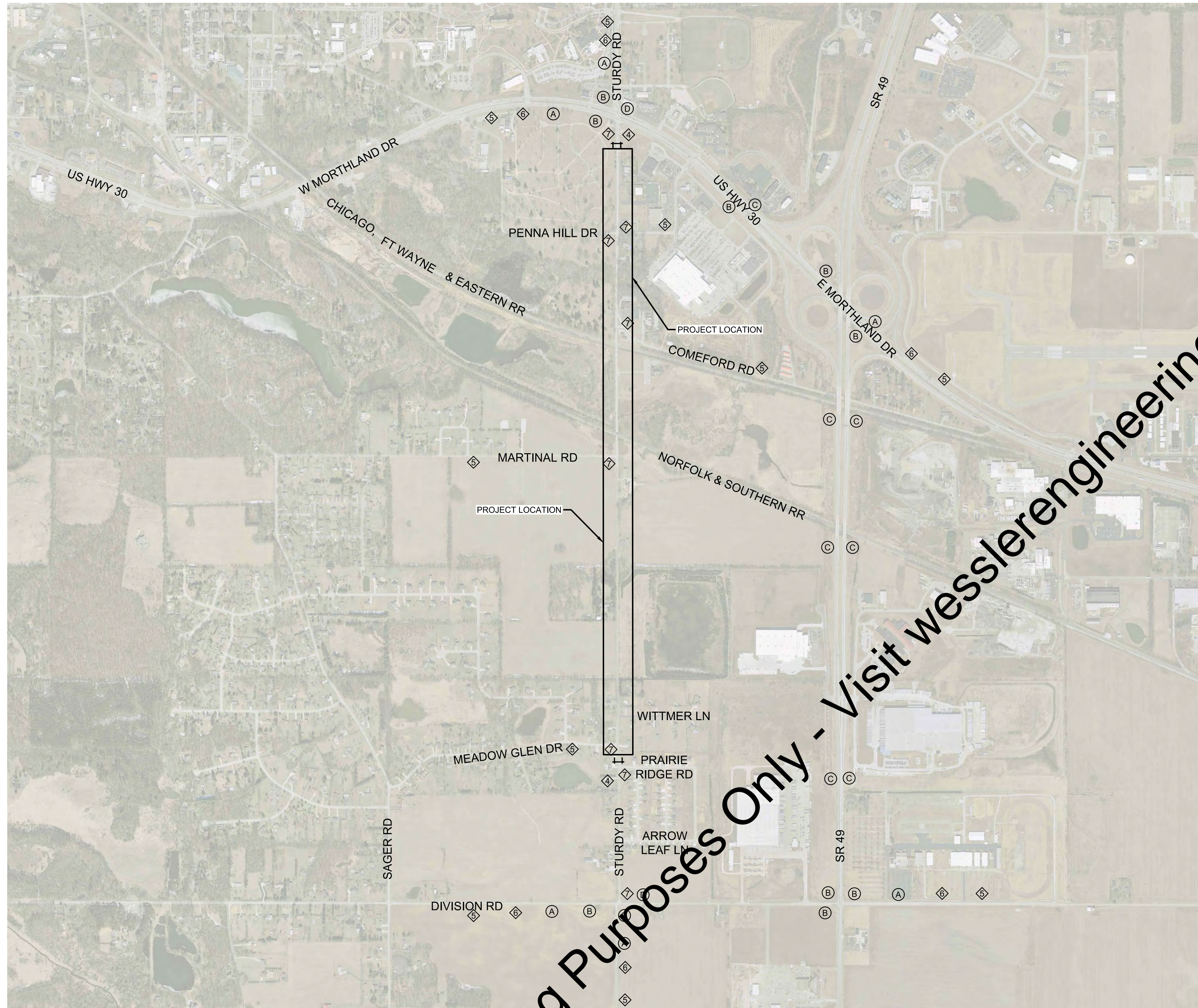
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	APPROVED BY	CAH				
	ISSUE DATE	OCTOBER 2019				
	PROJECT NUMBER	208218-04-03				



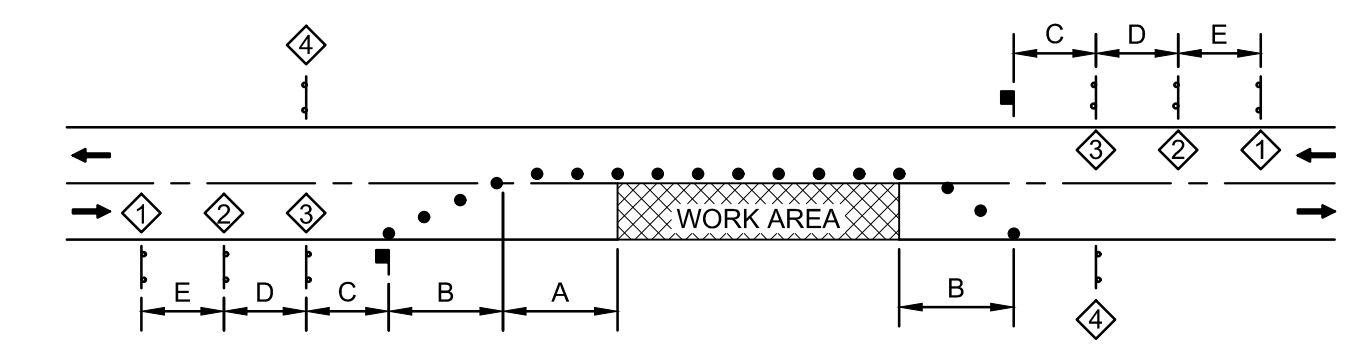
STURDY ROAD WATER MAIN EXTENSION
VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA
MISCELLANEOUS DETAILS

SHEET NO.
12
TOTAL SHEETS
15



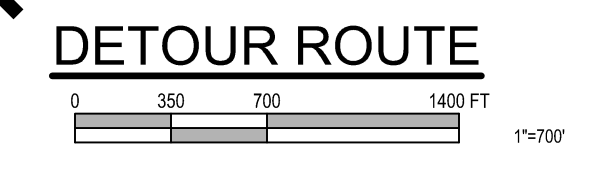
- TRAFFIC CONTROL NOTES:**
1. PROVIDE SIGNS AND PLACEMENT OF SIGNS IN COMPLIANCE WITH THE MUTCD (LATEST EDITION) AND THE CURRENT INDOT STANDARDS.
 2. WHEN ADDITIONAL WORKING SPACE IS NEEDED, UTILIZE THE FLAGGER OPERATION TO MAINTAIN ONE TRAVEL LANE.
 3. COVER SIGNS 2 AND 3 WHEN WORK IS NOT IN PROGRESS.
 4. DURING CONSTRUCTION MINIMIZE DAMAGE TO THE EXISTING PAVEMENT, DRIVES, AND CURBS.
 5. BACKFILL EXCAVATIONS IN PAVEMENT AREAS DAILY AND TEMPORARILY COVER ANY OPENINGS WITH STEEL PLATES UNTIL PAVEMENT IS REPLACED.
 6. IF CLOSURE OF THE ROAD IS NEEDED, UTILIZE INDOT STANDARD DRAWINGS E 801-TCDDT-01 AND E 801-TCDDT-04.
 7. DO NOT CLOSE ANY ADJACENT CROSS STREETS OR INTERSECTIONS AT THE SAME TIME.
 8. RECOMMENDED DETOUR ROUTE FOR STURDY ROAD IS: DIVISION ROAD, SR 49, US 30.
 9. SUBMIT A DETAILED DETOUR ROUTE PLAN AND TIMELINE FOR APPROVAL 2 WEEKS PRIOR TO ANY CLOSURES.
 10. PROTECTIVE BARRICADES AND ACCESS FOR EMERGENCY VEHICLES, SCHOOL BUSES AND ADJACENT RESIDENTIAL PROPERTIES MUST BE MAINTAINED DURING CONSTRUCTION.
 11. COORDINATE CLOSURES WITH ALL EMERGENCY AGENCIES AND SCHOOL DISTRICTS.

- TRAFFIC CONTROL LEGEND**
SCALE: NONE
- ▨ WORK AREA(S)
 - ⊕ TYPE A CONSTRUCTION WARNING LIGHT
 - ◇ "ROAD WORK AHEAD" (W20-1) OR "UTILITY WORK AHEAD" (W21-7)
 - ◇ "ONE LANE ROAD AHEAD" (W20-4)
 - ◇ FLAGGER SIGN (W20-7)
 - ◇ "END ROAD WORK" (G20-2)
 - ◇ "ROAD CLOSED AHEAD" (W20-3) "STURDY RD"
 - ◇ "DETOUR AHEAD" (W20-2)
 - ◇ ROAD CLOSURE ASSEMBLY WITH R11-4
 - ⇄ BARRICADE TYPE III B
 - TRAFFIC CONTROL DRUM
 - TRAFFIC FLOW DIRECTION
 - ⊥ FLAGGER
 - ⊥ SIGN, FACING LEFT
 - ⊥ SIGN, FACING RIGHT



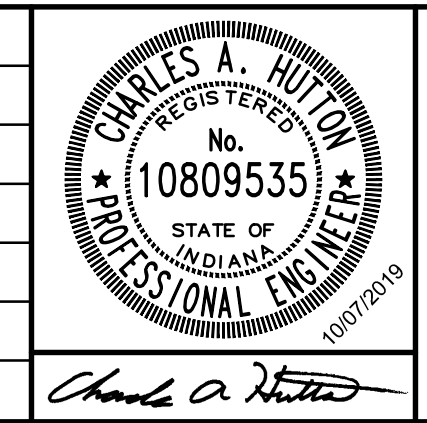
TEMPORARY FLAGGER OPERATION
SCALE: NONE

2013 IMAGERY FROM INDIANA STATE MAP.



Drawing: J:\Valparaiso\Projects\208218_Valparaiso Water Loop\CAD 04-03\DWG\Sheets\208218-MS.dwg | Layout: MTT | Plotter: 1003119 @ 12:50:12 | LastSavedBy: MichelleE

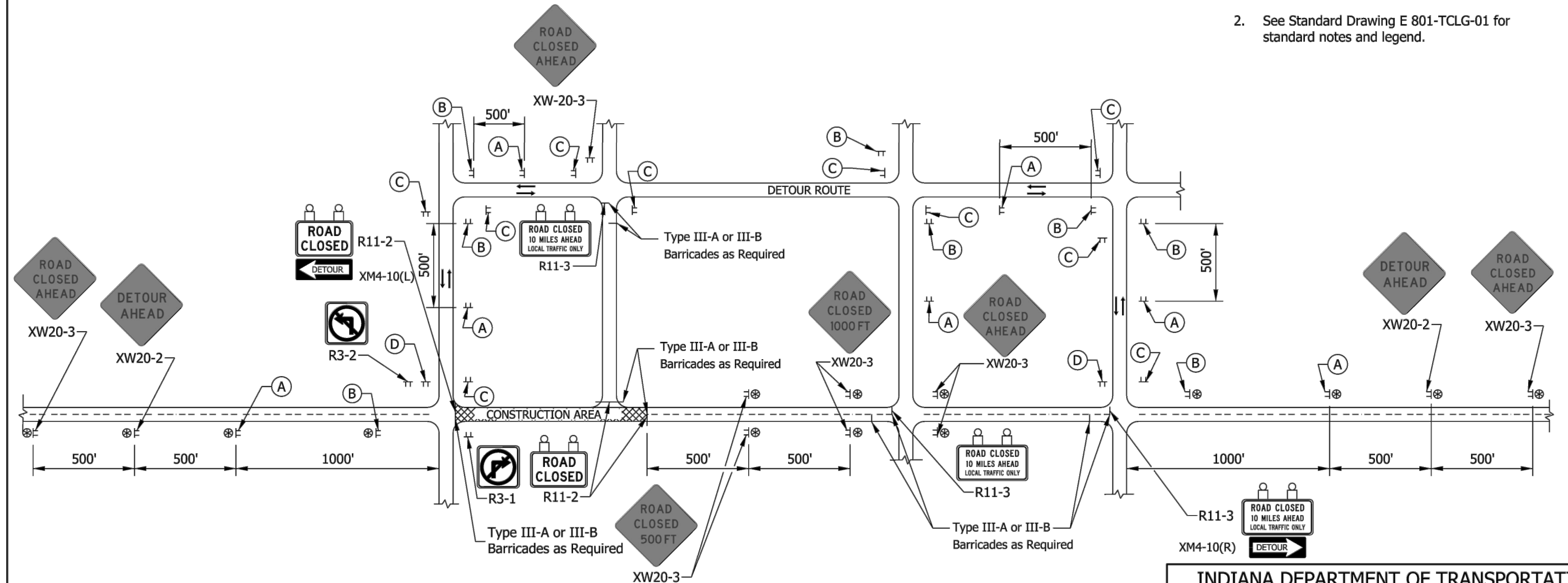
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	ISSUE DATE					
	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					



STURDY ROAD WATER MAIN EXTENSION
 VALPARAISO CITY UTILITIES
 VALPARAISO, INDIANA
DETOUR PLAN AND MAINTENANCE OF TRAFFIC DETAILS

SHEET NO.	13
TOTAL SHEETS	15

- NOTES:**
- For detour route marker assemblies (A), (B), (C) and (D) see Standard Drawing E 801-TCDT-04.
 - See Standard Drawing E 801-TCLG-01 for standard notes and legend.



TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES FOR A RURAL DETOUR

INDIANA DEPARTMENT OF TRANSPORTATION

RURAL DETOUR

SEPTEMBER 2017

STANDARD DRAWING NO. E 801-TCDT-01

DAVID H. BORUFF
REGISTERED
No. 60900348
STATE OF INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 04/24/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 04/25/17
CHIEF ENGINEER DATE

DETOUR XM 4-8

NORTH M3-1 to M3-4

RTE MKR M1-4 or M1-6

M5-1 (L or R)

(A) ADVANCE TURN DETOUR ROUTE MARKER ASSEMBLY (1)

(B) DIRECTIONAL DETOUR ROUTE MARKER ASSEMBLY (2)

(C) CONFIRMING DETOUR ROUTE MARKER ASSEMBLY (3)

(D) END DETOUR ROUTE MARKER ASSEMBLY (4)

(E) BI-DIRECTIONAL DETOUR ROUTE MARKER ASSEMBLY

(F) BI-DIRECTIONAL CONFIRMING DETOUR ROUTE MARKER ASSEMBLY

INDIANA DEPARTMENT OF TRANSPORTATION

DETOUR ROUTE MARKER ASSEMBLIES

SEPTEMBER 2017

STANDARD DRAWING NO. E 801-TCDT-04

DAVID H. BORUFF
REGISTERED
No. 60900348
STATE OF INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 04/24/17
DESIGN STANDARDS ENGINEER DATE

/s/ John Leckie 04/25/17
CHIEF ENGINEER DATE

- NOTES:**
- Advance turn detour route marker assemblies shall be located as shown, or after the last cross street prior to the beginning of the detour, as directed.
 - Directional detour route marker assemblies shall be located 100 ft. to 200 ft. in advance of all required turns within the detour limits.
 - Confirming detour route marker assemblies shall be located 200 ft. past all major intersections, as required, and shall be spaced a maximum of 3 mi. on a rural detour or 0.5 mi. on an urban detour on each leg of such detours. Confirming detour route marker assemblies shall be placed after a required turn when directed.
 - End detour route marker assemblies shall be located 100 ft. to 200 ft. in advance of the final turn of the detour.

STATE HIGHWAY / NUMBERED LOCAL HIGHWAY

SPEED (MPH)	DISTANCE (FEET)				
	A	B	C	D	E
20 OR LESS	120	100	100	100	100
25	160	100	100	100	100
30	200	100	100	100	100
35	280	100	350	350	350
40	320	100	350	350	350
45	360	100	500	500	500
50	440	100	500	500	500
55	520	100	500	500	500
60	600	100	1,000	1,600	2,640
65	680	100	1,000	1,600	2,640
70	760	100	1,000	1,600	2,640

- NOTES:**
- DISTANCES SHOWN ARE APPROXIMATE. ADJUST SIGN FOR CURVES, HILLS, INTERSECTIONS, DRIVEWAYS, ETC TO IMPROVE SIGN VISIBILITY.
 - THE SPACING OF CHANNELIZING DEVICES SHOULD BE A DISTANCE IN FEET EQUAL TO THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH USED FOR TANGENT CHANNELIZATION.

ADVANCE WARNING SIGN AND FLAGGER OPERATION SPACING
SCALE: NONE

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	OCTOBER 2019					
	PROJECT NUMBER					
	208218-04-03					

CHARLES A. HUTTON
REGISTERED
No. 10809535
STATE OF INDIANA
PROFESSIONAL ENGINEER

10/03/2019

Charles A. Hutton

W
WESSLER
ENGINEERING

More than a Project™

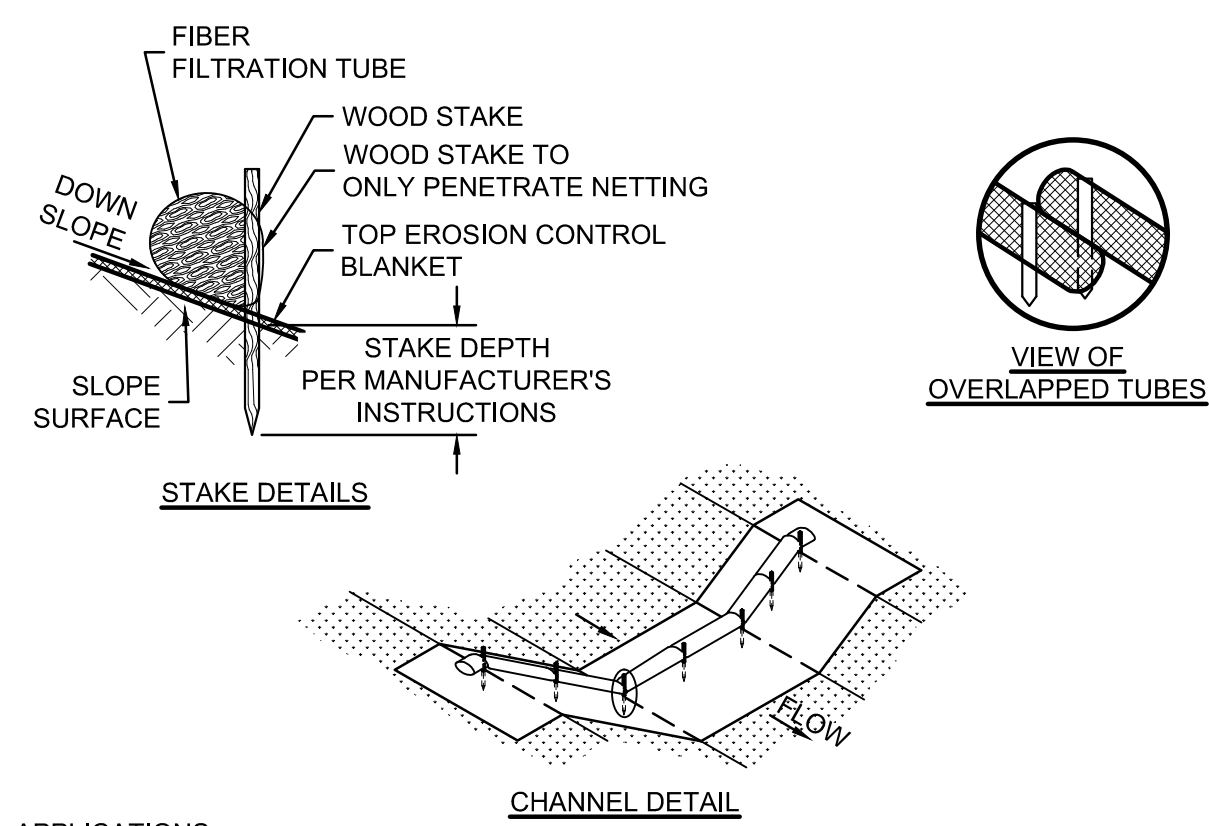
STURDY ROAD WATER MAIN EXTENSION

VALPARAISO CITY UTILITIES
VALPARAISO, INDIANA

MAINTENANCE OF TRAFFIC DETAILS

SHEET NO.
14

TOTAL SHEETS
15

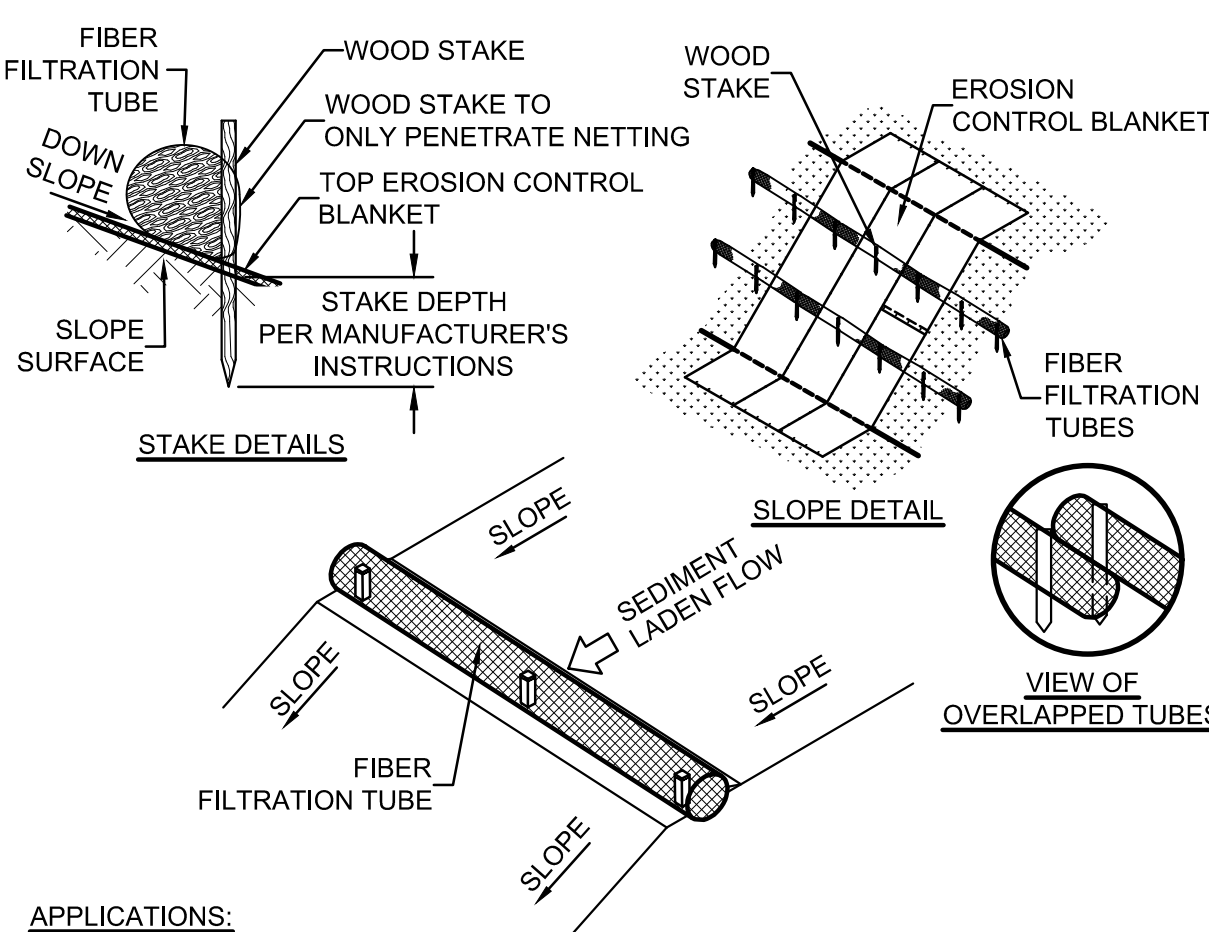


APPLICATIONS:
 1. DOWN-GRADIENT OF A PROJECT LIMITS.
 2. ACROSS DITCHES OR SWALES.
 3. TO SLOW FLOWS AND FILTER SEDIMENTS.

INSTALLATION:
 1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 2. USE THE APPROPRIATE SIZE, LENGTH AND DISTANCE BETWEEN TUBES AS SPECIFIED BY THE MANUFACTURER.
 3. ENTRENCH PER MANUFACTURER'S INSTRUCTIONS.

MAINTENANCE:
 1. REMOVE ALL ACCUMULATED SEDIMENT WHEN IT REACHES 1/4 THE HEIGHT OF THE TUBE.
 2. REPAIR ERODED AND DAMAGED AREAS.
 3. IF PONDING BECOMES EXCESSIVE DUE TO REDUCED FILTERING CAPACITY, REMOVE THE TUBE AND EITHER RECONSTRUCT OR REPLACE WITH NEW PRODUCT.
 4. INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.

FIBER FILTRATION TUBES - CHANNEL
 SCALE: NONE

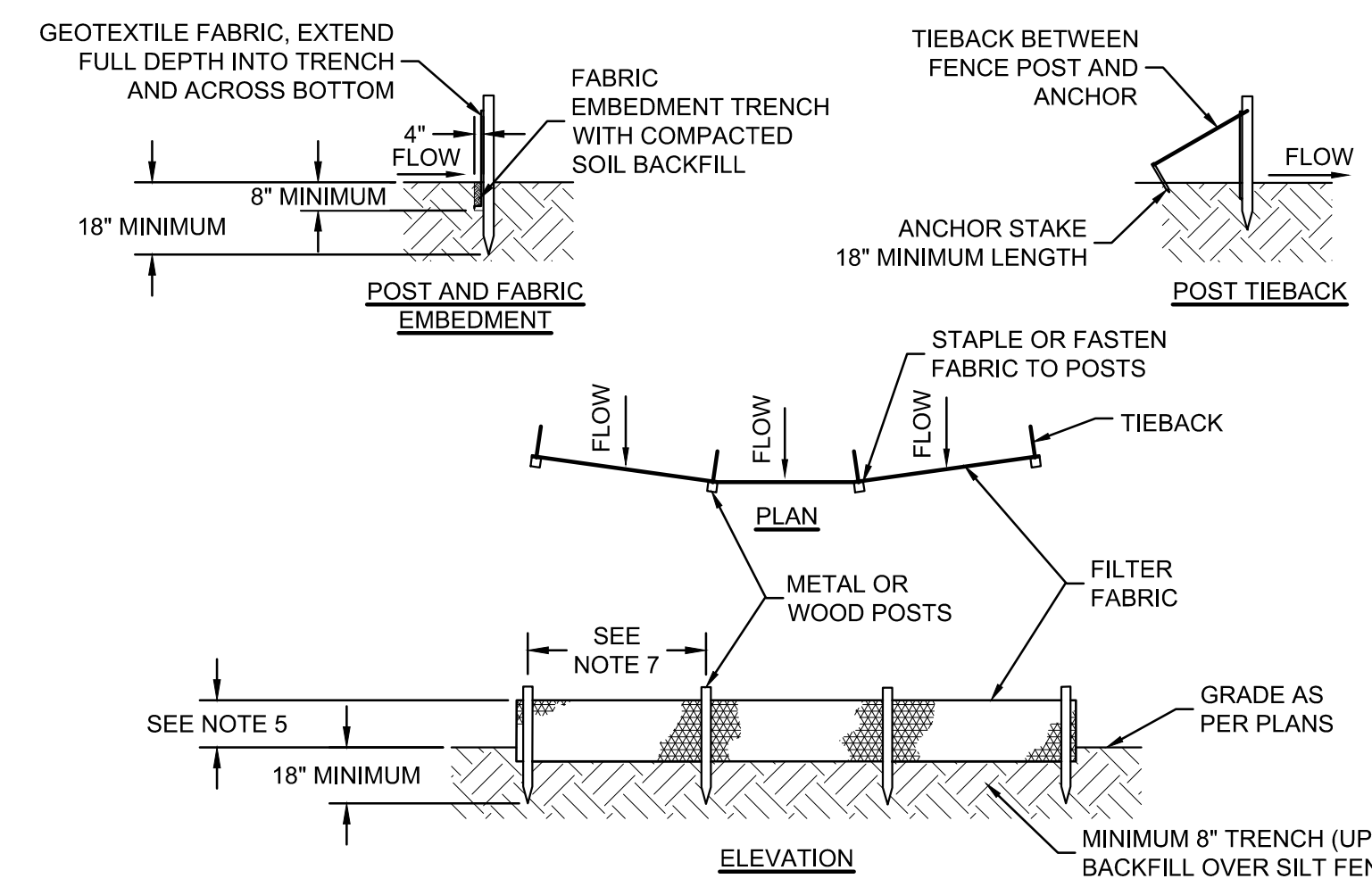


APPLICATIONS:
 1. TOP OF SLOPES.
 2. AT PROJECT PERIMETER.

INSTALLATION:
 1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 2. USE THE APPROPRIATE SIZE, LENGTH AND DISTANCE BETWEEN TUBES AS SPECIFIED BY THE MANUFACTURER.
 3. ENTRENCH PER MANUFACTURER'S INSTRUCTIONS.

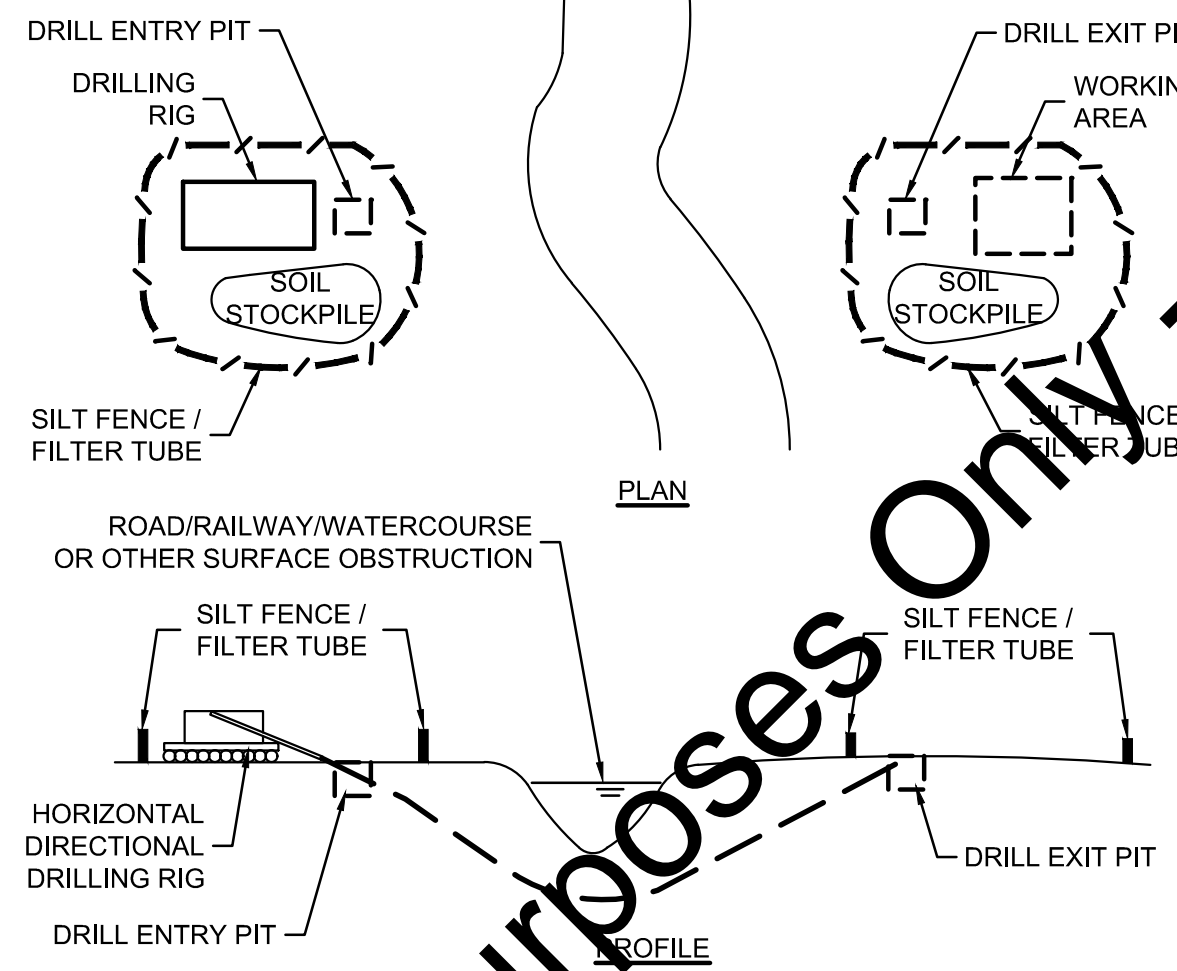
MAINTENANCE:
 1. REMOVE ALL ACCUMULATED SEDIMENT WHEN IT REACHES 1/4 THE HEIGHT OF THE TUBE.
 2. REPAIR ERODED AND DAMAGED AREAS.
 3. IF PONDING BECOMES EXCESSIVE DUE TO REDUCED FILTERING CAPACITY, REMOVE THE TUBE AND EITHER RECONSTRUCT OR REPLACE WITH NEW PRODUCT.
 4. INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.

FIBER FILTRATION TUBES - SLOPE
 SCALE: NONE



NOTES:
 1. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF WOVEN OR NON-WOVEN GEOTEXTILE FABRIC AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE FOLLOWING REQUIREMENTS:
 a. TEXTILE STRENGTH AT 20% (MAXIMUM) ELONGATION, PER ASTM D4632.
 b. WOVEN EXTRA STRENGTH - 50 LB/LINEAR INCH (MINIMUM), NON-WOVEN EXTRA STRENGTH - 70 LB/INCH (MINIMUM).
 c. WOVEN STANDARD STRENGTH - 30 LB/LINEAR INCH (MINIMUM), NON-WOVEN STANDARD STRENGTH - 50 LB/INCH (MINIMUM).
 d. APPARENT OPENING SIZE (AOS) (U.S. SIEVE) - NO. 30 PARTICLE SIZE OF 0.6 mm (MAXIMUM), ASTM D4751.
 e. PERMITTIVITY - 0.05 S⁻¹ (MAXIMUM), ASTM D4491.
 2. POSTS FOR SILT FENCES SHALL BE EITHER 2"x2" SQUARE WOOD OR EQUIVALENT METAL POSTS WITH A MINIMUM LENGTH OF 5'. METAL POSTS SHALL HAVE PROJECTIONS FOR FASTENING WIRE TO THEM.
 3. ANCHOR STAKES FOR SILT FENCES SHALL BE 1"x2" WOOD (PREFERRED) OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 18".
 4. WIRE FENCE REINFORCEMENT FOR SILT FENCES USING STANDARD STRENGTH FILTER CLOTH SHALL BE A MINIMUM OF 42" IN HEIGHT, A MINIMUM OF 14 GAUGE, AND SHALL HAVE A MAXIMUM MESH SPACING OF 6".
 5. THE HEIGHT OF THE BARRIER SHALL BE A MINIMUM OF 18" AND A MAXIMUM OF 30".
 6. THE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER FABRIC SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6" OVERLAP, AND SECURELY SEALED.
 7. POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 18"). WHEN STANDARD STRENGTH FABRIC IS USED WITH THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 8".
 8. THE SPACING OF TIEBACKS SHALL EQUAL THE SPACING OF THE POSTS. ADDITIONAL POST DEPTH OR TIEBACKS MAY BE REQUIRED IN UNSTABLE SOILS.
 9. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE AND A MINIMUM OF 8" DEEP ALONG THE LINE OF POSTS AND TIEBACKS.
 10. WHEN STANDARD STRENGTH FILTER FABRIC IS USED WITH A WIRE MESH SUPPORT FENCE IT SHALL BE FASTENED TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY 1" WIRE STAPLES, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2" AND SHALL NOT EXTEND MORE THAN 36" ABOVE THE ORIGINAL GROUND SURFACE.
 11. THE STANDARD STRENGTH FILTER FABRIC, WITHOUT A WIRE MESH SUPPORT FENCE, SHALL BE STAPLED OR Nailed TO THE FENCE, AND A MINIMUM 8" OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36" ABOVE THE ORIGINAL GROUND SURFACE. DO NOT STAPLE FILTER FABRIC TO EXISTING TREES.
 12. WHEN EXTRA STRENGTH FILTER FABRIC OR BURLAP AND POST SPACING IS LESS THAN THE MAXIMUM SPACING OF 6", THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED.
 13. BACKFILL THE TRENCH AND COMPACT THE SOIL OVER THE FILTER FABRIC.
 14. REMOVE SILT FENCES WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
 15. SILT FENCE SHALL NOT BE USED AS A DIVERSION AND SHALL NOT BE INSTALLED ACROSS A STREET, CHANNEL, DITCH, SWALE, ETC.

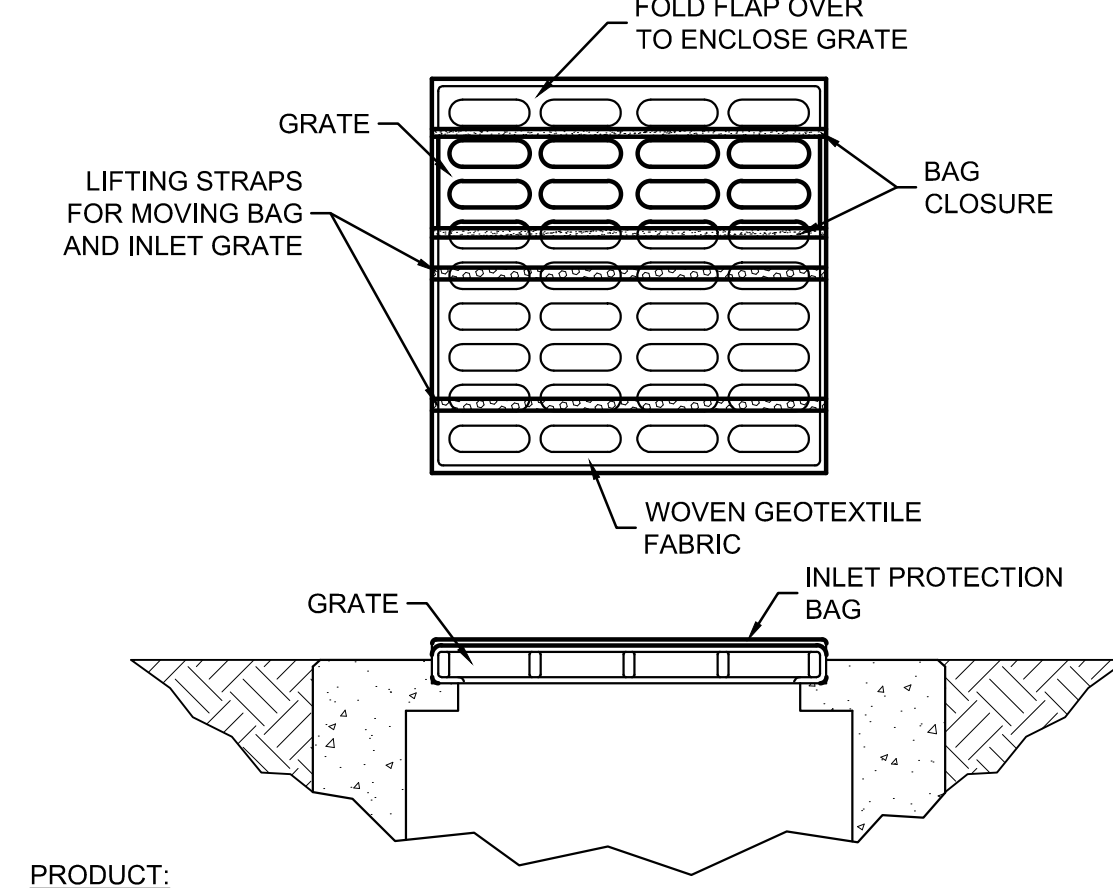
SILT FENCE
 SCALE: NONE



NOTES:
 1. INSTALL SILT FENCE/FILTER TUBE PERIMETER PRIOR TO ANY EXCAVATION.
 2. FILTER WATER FROM BORE PIT DEWATERING, AND DO NOT DIRECTLY DISCHARGE TO ANY DITCH, STREAM, WETLAND OR STORM WATER CONVEYANCE. REFER TO PUMPING BAG DETAIL.
 3. PLACE SOIL STOCKPILES WITHIN THE SILT FENCE/FILTER TUBE PERIMETER BOUNDARY.
 4. SOIL FROM STOCKPILES SHALL BE USED FOR BACKFILL OR DISPOSED OF PROPERLY.
 5. RESEED WITHIN 24 HOURS OF ALL DISTURBED SOIL SURFACES.
 6. ENVIRONMENTAL PROTECTION TO BE PROVIDED AS NECESSARY TO CONTAIN ANY DRILLING FLUID SPILLS.

MAINTENANCE:
 1. INSPECT SILT FENCE/FILTER TUBE PERIMETER AFTER EACH RAINFALL, AND REPAIR OR REPLACE IMMEDIATELY.
 2. REMOVE SEDIMENT DEPOSITS FROM THE SILT FENCE/FILTER TUBE PERIMETER PROTECTION AFTER STORM EVENTS.

HORIZONTAL DIRECTIONAL DRILLING
 SCALE: NONE



PRODUCT:
 1. DANDY BAG, OR APPROVED EQUAL.

INSTALLATION:
 1. THE EMPTY INLET PROTECTION BAG SHOULD BE PLACED OVER THE GRATE AS THE GRATE STANDS ON END.
 2. TUCK THE ENCLOSURE FLAP INSIDE TO COMPLETELY ENCLOSE THE GRATE.
 3. HOLDING THE LIFTING DEVICES (DO NOT RELY ON LIFTING DEVICES TO SUPPORT THE ENTIRE WEIGHT OF THE GRATE), PLACE THE GRATE INTO ITS FRAME.

MAINTENANCE:
 1. REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH STORM EVENT.
 2. REMOVE SEDIMENT THAT HAS ACCUMULATED WITHIN THE CONTAINMENT AREA OF THE INLET PROTECTION BAG AS NEEDED.
 3. INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND ONCE EVERY 7 CALENDAR DAYS.

INLET PROTECTION BAG
 SCALE: NONE

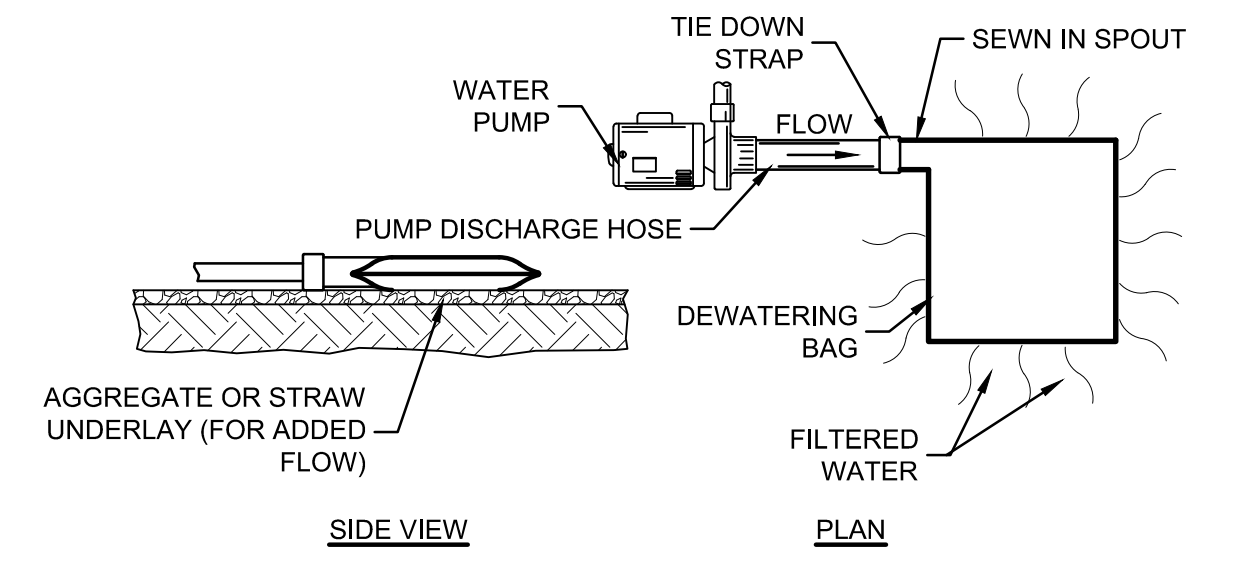
SEASONAL SOIL PROTECTION CHART

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
STABILIZATION PRACTICE												
PERMANENT SEEDING						A						
DORMANT SEEDING		B									B	
TEMPORARY SEEDING			C									D
SODDING						F						
MULCHING								G				

A. = KENTUCKY BLUEGRASS 40 LB/ACRE
 B. = KENTUCKY BLUEGRASS 210 LB/ACRE
 C. = SPRING OATS 100 LB/ACRE (1" PLANTING DEPTH)
 D. = WHEAT OR RYE 150 LB/ACRE (1" - 1.5" PLANTING DEPTH)
 E. = ANNUAL RYEGRASS 40 LB/ACRE (1/4" PLANTING DEPTH)
 F. = SOD
 G. = ANCHORED STRAW/HAY (2 TONS/ACRE) OR WOOD FIBER/CELLULOSE (1 TON/ACRE)

NOTES:
 1. IRRIGATION NEEDED DURING MAY THROUGH SEPTEMBER.
 2. IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD.
 3. ANCHORED MULCH IS REQUIRED FOR PERMANENT, DORMANT AND TEMPORARY SEEDING.
 4. OPTIMUM SEEDING DATES PROVIDED. DATES MAY BE EXTENDED OR SHORTENED BASED ON PROJECT LOCATION.
 5. SEED MIXTURES PROVIDED FOR LAWNS AND HIGH MAINTENANCE AREAS.

MAINTENANCE:
 1. INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
 2. CHECK FOR EROSION AND MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
 3. MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (70% DENSITY).
 4. RESEED, FERTILIZE OR APPLY MULCH WHERE NECESSARY.



MECHANICAL PROPERTIES	TEST METHOD	UNITS	INDUSTRY STANDARD
GRAB TENSILE STRENGTH	ASTM D4632	kN (LB)	0.9 (205) X 0.9 (205)
GRAB TENSILE ELONGATION	ASTM D4632	%	50 X 50
PUNCTURE STRENGTH	ASTM D4833	kN (LB)	0.58 (130)
MULLEN BURST STRENGTH	ASTM D3786	kPa (PSI)	2618 (380)
TRAPEZOID TEAR STRENGTH	ASTM D4533	kN (LB)	0.36 (80) X 0.36 (80)
UV RESISTANCE	ASTM D4355	%	70
APPARENT OPENING SIZE	ASTM D4751	Mm (US STD SIEVE)	0.180 (80)
FLOW RATE	ASTM D4491	1/MIN/M ² (GAL/MIN/FT ²)	3866 (95)
PERMITTIVITY	ASTM D4491	S ⁻¹	1.2

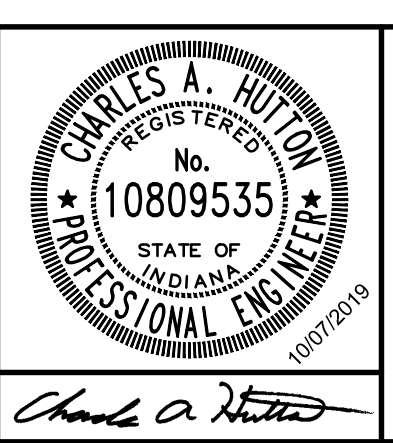
MAINTENANCE:
 1. DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE PUMPING BAG SHOULD BE REVIEWED FREQUENTLY. SPECIAL ATTENTION SHOULD BE PAID TO THE BUFFER AREA FOR ANY SIGN OF EROSION AND CONCENTRATION OF FLOW. OBSERVE WHERE POSSIBLE THE VISUAL QUALITY OF THE EFFLUENT AND DETERMINE IF ADDITIONAL TREATMENT CAN BE PROVIDED.
 2. DISPOSE OF ACCUMULATED SEDIMENT REMOVED DURING PUMPING OPERATIONS IN CONFORMANCE WITH THE SPECIFICATIONS.
 3. REPLACE THE BAG OR DISPOSE OF SILT WHEN HALF FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE TO AN IMPRACTICAL RATE.
 4. DEWATERING BAG TO BE SIZED APPROXIMATELY TO ACCOMMODATE PUMP CAPACITY.

SOURCE:
 KRISTAR
 DANDY DEWATERING BAG
 SEDCATCH

PUMPING BAG
 SCALE: NONE

Drawing: J:\Valparaiso\Projects\208218_Valparaiso Water Loop\CAD 04-003\DWG\Sheets\208218-CD.dwg | Layout: CD1 | Plotted: 10/03/19 @ 12:59:18 | LastSavedBy: MichelleE

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	208218-04-03					



STURDY ROAD WATER MAIN EXTENSION
 VALPARAISO CITY UTILITIES
 VALPARAISO, INDIANA

EROSION CONTROL DETAILS

SHEET NO.	15
TOTAL SHEETS	15