

CONSTRUCTION PLANS
FOR
KEMPER DITCH, ARM 15
DRAIN TILE RECONSTRUCTION

PORTER CO. DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
JANUARY 25, 2022

The following Construction Plans shall apply to and govern the project designated as **Kemper Ditch, Arm 15 - Drain Tile Reconstruction**. Such Construction Plans supplement the specifications contained in the documents listed in the table below and, in case of conflict with any part or parts of said specifications, the Engineer shall determine which specifications shall take precedence and govern. The following hierarchy will be applied by the Engineer in resolving any conflict, error, ambiguity, or discrepancy in or between said specifications.

Specification	Issuing Agency	Adopted/Dated
Special Provisions for Kemper Ditch, Arm 15 – Drain Tile Reconstruction	Porter Co. Department of Development & Storm Water Management	January 25, 2022
Technical Specifications for Kemper Ditch, Arm 15 - Drain Tile Reconstruction	Porter Co. Department of Development & Storm Water Management	January 25, 2022
Construction Plans for Kemper Ditch, Arm 15 - Drain Tile Reconstruction	Porter Co. Department of Development & Storm Water Management	January 25, 2022
General Specifications to the Construction & Maintenance Services Agreements	Porter Co. Department of Development & Storm Water Management	February 1, 2022

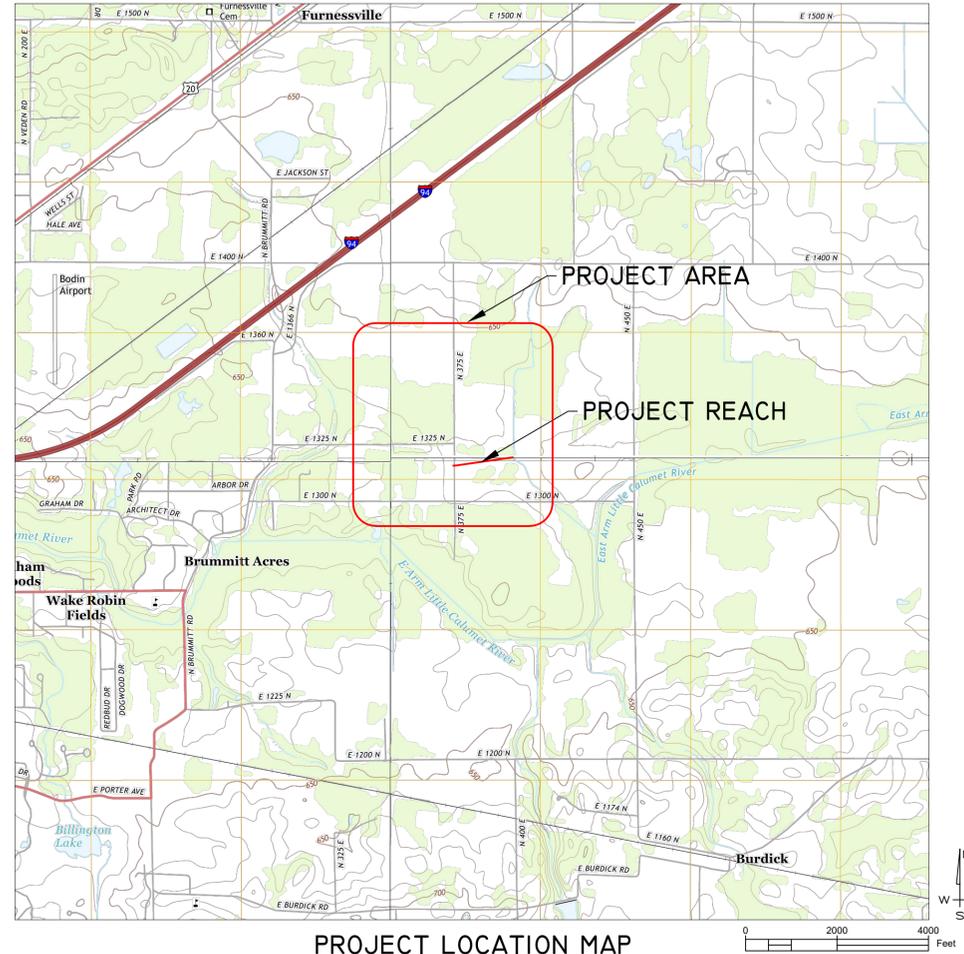
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PORTER CO. DEPT. OF DEVELOPMENT & STORM WATER MANAGEMENT

KEMPER DITCH, ARM 15 DRAIN TILE RECONSTRUCTION PORTER COUNTY, IN

OWNER:
 PORTER CO. DEPT. OF DEVELOPMENT &
 STORM WATER MANAGEMENT
 ATTN: MICHAEL E. NOVOTNEY, P.E.
 155 INDIANA AVE. STE. 311
 VALPARAISO, IN 46383
 P: (219) 465-3530

ENGINEER:
 PORTER CO. DEPT. OF DEVELOPMENT &
 STORM WATER MANAGEMENT
 ATTN: MICHAEL E. NOVOTNEY, P.E.
 155 INDIANA AVE. STE. 311
 VALPARAISO, IN 46383
 P: (219) 465-3530



PROJECT LOCATION MAP

SHEET INDEX:

1. COVER
2. PLAN STA. 0+00 TO STA. 6+50
3. PLAN STA. 6+50 TO STA. 13+80
4. PROFILE & STORM SEWER STRUCTURE SCHEDULE
5. DETAILS
6. EROSION & SEDIMENT CONTROL PLAN & DETAILS AND RESTORATION PLAN

NO.	DATE	REVISION	BY
1	1/12/22	INTERNAL REVIEW	CRG
2	1/25/22	FOR BIDDING	CRG

DESIGNED:	CRG
DRAWN:	CRG
CHECKED:	MEN
DATE:	1/4/22
PROJECT NO.:	P21-040



**The Department of
 STORM WATER
 MANAGEMENT**
 Porter County, Indiana

PROJECT:	KEMPER DITCH - ARM 15-DRAIN TILE RECONSTRUCTION
LOCATION:	1315 N 375 E
SHEET TITLE:	SHEET 1-COVER

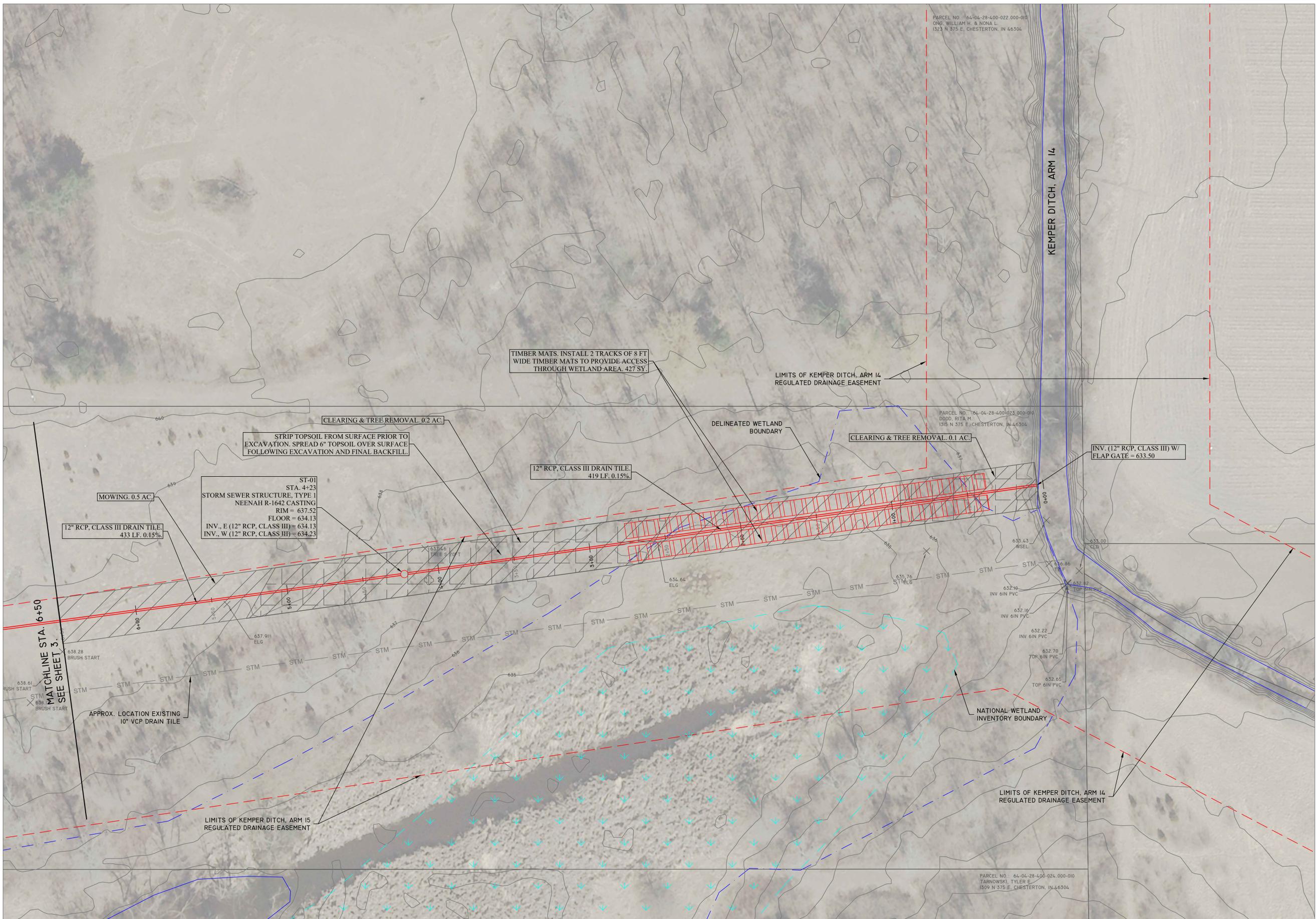
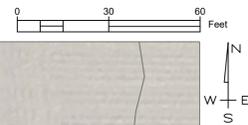
I, THE UNDERSIGNED, A PROFESSIONAL ENGINEER REGISTERED WITH THE STATE OF INDIANA, WHOSE LICENSE IS IN GOOD STANDING, HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

 CHELSEY R. GORDON, PE
 INDIANA LICENSED PROFESSIONAL ENGINEER NO. PEI2100019
 EXPIRES 7/31/2022

APPROVED FOR CONSTRUCTION BY: _____
 MICHAEL E. NOVOTNEY, PE
 COUNTY ENGINEER

SHEET NO.:

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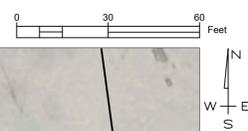
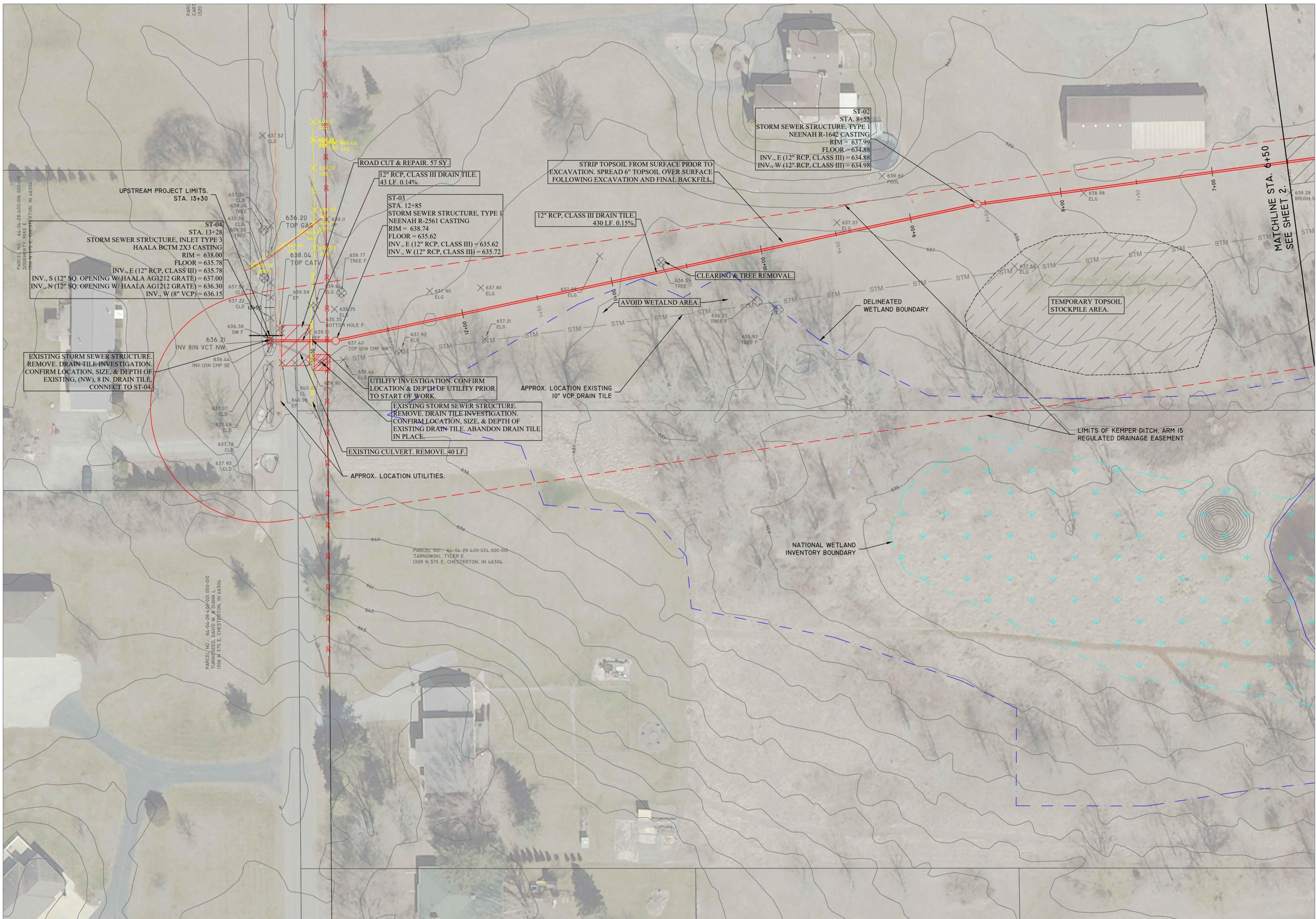
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Porter County, Indiana

PROJECT:	KEMPER DITCH - ARM 15-DRAIN TILE RECONSTRUCTION
LOCATION:	1315 N 375 E
SHEET TITLE:	SHEET 2-PLAN STA. 0+00 TO STA. 6+50



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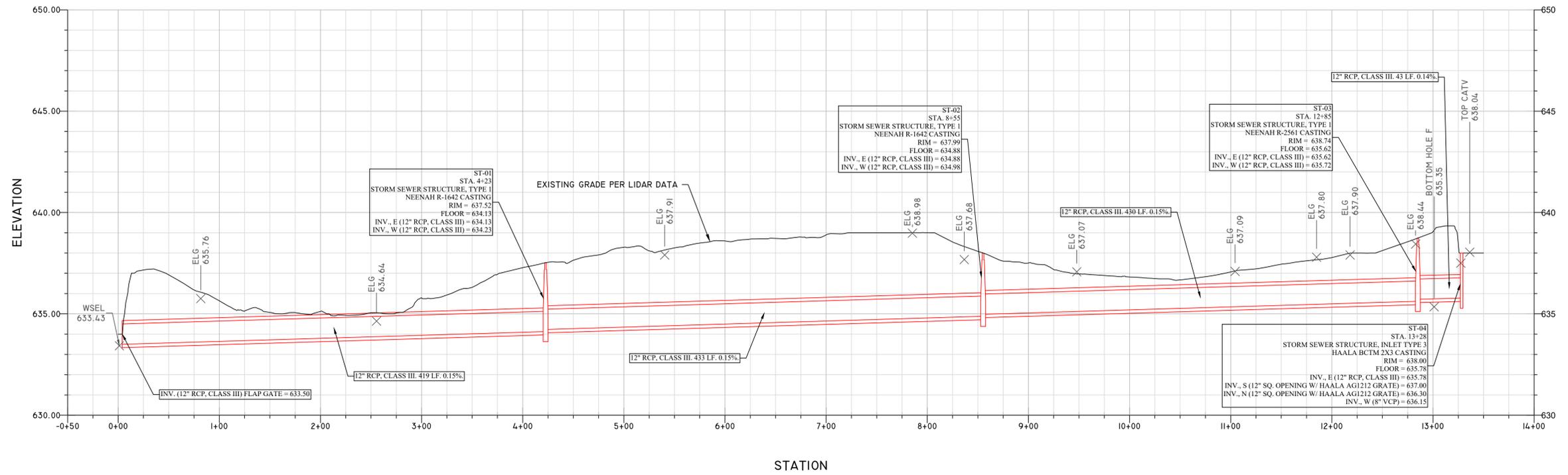


The Department of
**STORM WATER
 MANAGEMENT**
 Porter County, Indiana

PROJECT:	KEMPER DITCH - ARM 15-DRAIN TILE RECONSTRUCTION
LOCATION:	1315 N 375 E
SHEET TITLE:	SHEET 3-PLAN STA. 6+50 TO STA. 13+80

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PROFILE VIEW OF KEMPER DITCH ARM 15 DRAIN TILE RECONSTRUCTION



KEMPER DITCH ARM 15 STORM SEWER STRUCTURE SCHEDULE

STRUCTURE NO.	STATION	NORTHING	EASTING	RIM ELEV.	FLOOR ELEV.	PIPE OUT, INVERT(S)	PIPE IN, INVERT(S) AND ANGLE(S) (FROM OUT)	CASTINGS
ST-01	4+23	2322697.78	2977807.78	637.52	634.13	E 12" RCP, CLASS III 634.13	W 12" RCP, CLASS III 634.23, 180°	NEENAH R-1642
ST-02	8+55	2322639.46	2977379.15	637.99	634.88	E 12" RCP, CLASS III 634.88	W 12" RCP, CLASS III 634.98, 180°	NEENAH R-1642
ST-03	12+85	2322550.20	2976958.67	638.74	635.62	E 12" RCP, CLASS III 635.62	W 12" RCP, CLASS III 635.72, 171°	NEENAH R-2561
ST-04	13+28	2322550.28	2976915.42	638.00	635.78	E 12" RCP, CLASS III 635.78	S 12" SQ. OPENING W/ HAALA AG1212 GRATE 637.00 N 12" SQ. OPENING W/ HAALA AG1212 GRATE 636.30 W 8" VCP 636.15	HAALA BCTM 2X3

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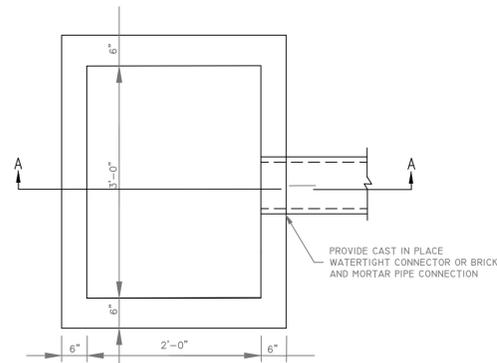


The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

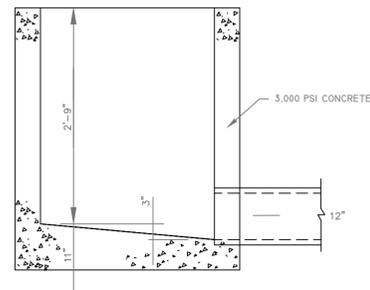
PROJECT:	KEMPER DITCH - ARM 15-DRAIN TILE RECONSTRUCTION
LOCATION:	1315 N 375 E
SHEET TITLE:	SHEET 4-PROFILE & STORM SEWER STRUCTURE SCHEDULE

SHEET NO.:

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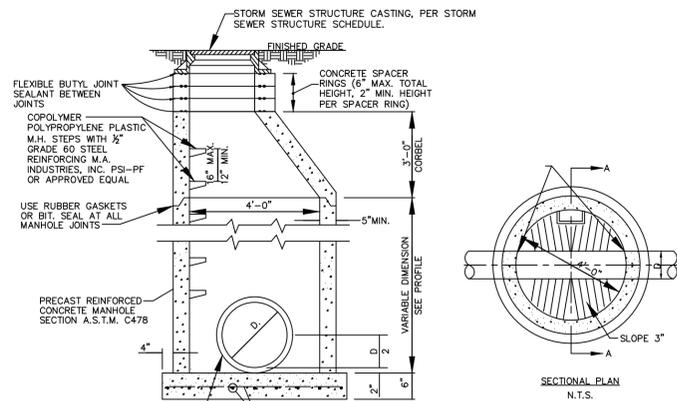
PLAN VIEW



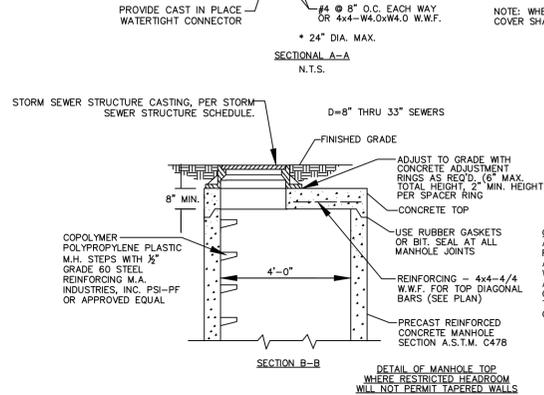
SECTION A-A

- NOTE:
1. PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP), CLASS III IN ACCORDANCE WITH ASTM C76/AASHTO M170
 2. CASTING SHALL BE HAALA BCTM 2X3, OR APPROVED EQUAL.

INLET, TYPE 3

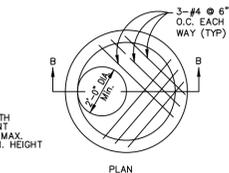


SECTIONAL PLAN N.T.S.



SECTION B-B

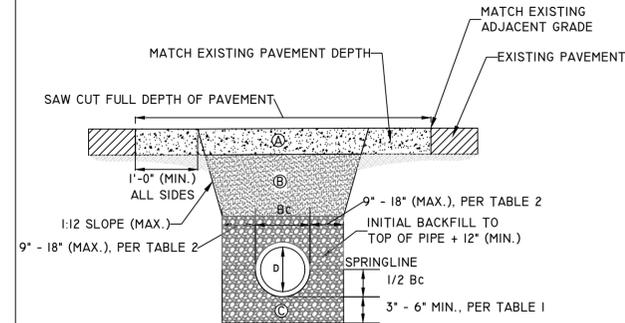
DETAIL OF MANHOLE TOP WHERE RESTRICTED HEADROOM WILL NOT PERMIT TAPERED WALLS



PLAN

GENERAL CONSTRUCTION REQUIREMENTS
ALL PIPES SHALL HAVE A SMOOTH FINISH.
ALL MANHOLE JOINTS SHALL BE WATER-TIGHT AND CONSTRUCTED IN ACCORDANCE WITH ASTM SPEC. C-443-70.
THE BASE SHALL BE PLACED ON COMPACTED STRUCTURE BEDDING

STORM SEWER STRUCTURE, TYPE 1



LEGEND

- Ⓐ FULL DEPTH HMA REPAIR, SEE DETAIL.
- Ⓑ TRENCH BACKFILL. BACKFILL IN 8" LIFTS (MAX.) & COMPACT IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.
- Ⓒ CRUSHED STONE OR GRAVEL INDOT NO. 5, NO. 8, OR NO. 9 COARSE AGGREGATE WITH A 50% MECHANICAL CRUSH COUNT.

Bc PIPE OUTSIDE DIAMETER

NOTES:

1. ALL BEDDING, INITIAL BACKFILL, & FINAL BACKFILL SHALL BE INSTALLED IN 8" LIFTS (MAX.) & COMPACTED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS. BEDDING & INITIAL BACKFILL MATERIAL SHALL BE HAND PLACED AROUND THE HAUNCH AND SIDES OF THE PIPE TO ENSURE PROPER COMPACTION AND COMPLETE FILLING OF ALL VOIDS.

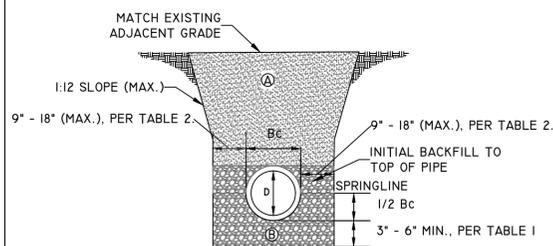
TABLE 1

DEPTH OF BEDDING BELOW PIPE	
D	BEDDING (MIN.)
D < 24IN.	3 IN.
24 IN. ≤ D ≤ 60 IN.	4 IN.
D > 60 IN.	6 IN.

TABLE 2

WIDTH OF TRENCH, EACH SIDE OF PIPE	
D	WIDTH (MAX.)
D < 24IN.	9 IN.
24 IN. ≤ D ≤ 60 IN.	12 IN.
D > 60 IN.	18 IN.

DESIGNED:	CRG
DRAWN:	CRG
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LEGEND

- Ⓐ UNDER PAVEMENT AND/OR WITHIN 2 FT OF PAVEMENT, TRENCH BACKFILL SHALL BE USED. ELSEWHERE, SUITABLE EXCAVATED MATERIAL MAY BE USED. INSTALL FINAL BACKFILL & COMPACT IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
- Ⓑ CRUSHED STONE OR GRAVEL INDOT NO. 5, NO. 8, OR NO. 9 COARSE AGGREGATE WITH A 50% MECHANICAL CRUSH COUNT.

Bc PIPE OUTSIDE DIAMETER

NOTES:

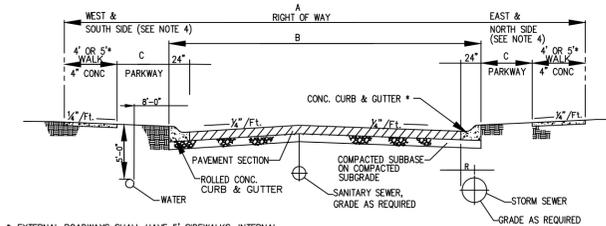
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D	WIDTH (MAX.)
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D > 60 IN.	18 IN.



* EXTERNAL ROADWAYS SHALL HAVE 5' SIDEWALKS, INTERNAL ROADWAYS SHALL HAVE 4' SIDEWALKS UNLESS IT IS PART OF A MAJOR PATHWAY OR PEDESTRIAN NETWORK.

CLASSIFICATION	MIN. GRADE	MAX. GRADE	MIN. SIGHT DISTANCE
ARTERIAL	0.5%	6.0%	500'
COLLECTOR STREET	0.5%	6.0%	300'
LOCAL STREET, BOULEVARD	0.5%	8.0%	150'
ALLEY	0.5%	8.0%	-

* OR CALCULATED STOPPING SIGHT DISTANCE PER AASHTO IF GREATER

CLASSIFICATION	MINIMUM PAVEMENT THICKNESS			SECOND REFD
	HMA SURFACE	HMA BASE (SUBBASE)	AGG. BASE	
ARTERIAL	1 1/2"	3"	20"	YES
COLLECTOR STREET	1 1/2"	3"	12"	YES
LOCAL STREET, BOULEVARD	1 1/2"	2 1/2"	10"	YES
ALLEY **	1 1/2"	2 1/2"	8"	YES

** NEW OR RECONSTRUCTED.

CLASSIFICATION	A	B	C	MIN. CURVE RADIUS	MIN. TANGENT	NOTES
ARTERIAL	80'	*	*	500**	100'	SIDEWALKS MAY BE REQUIRED*
COLLECTOR	80'	*	17.5'	300**	60'	SIDEWALKS REQUIRED
BOULEVARD (ONE WAY)	*	20'	0-11	200**	40'	SIDEWALKS REQUIRED
LOCAL (RESIDENTIAL)	60'	30'	0-11	100**	40'	SIDEWALKS REQUIRED
ALLEY	16.5'	12'	N/A	N/A	N/A	NO SIDEWALK
FRONTAGE	40'	24'	*	100**	40'	SIDEWALKS MAY BE REQUIRED* 4' SHLDR., NO PARKING
FRONTAGE	40'	28'	*	100**	40'	SIDEWALKS MAY BE REQUIRED* 4' SHLDR., ONE SIDE PARKING

* PORTER COUNTY ENGINEERING DEPARTMENT DETERMINATION
** MINIMUM TANGENT OF 100' SHALL SEPARATE ALL REVERSE CURVES.

NOTES:

1. UNDERDRAINS SHALL BE PROVIDED AT LOW POINTS.
2. INDUSTRIAL STREETS SHALL HAVE MINIMUM ROADWAY DIMENSIONS AS LOCAL STREETS. MINIMUM PAVEMENT SECTION SHALL BE SAME AS LOCAL STREETS, BUT A THICKER SECTION SHALL BE USED IF TRAFFIC NEEDS AND SOIL CONDITIONS WARRANT. DESIGN AND CALCULATIONS SHALL BE PROVIDED BY REGISTERED PROFESSIONAL ENGINEER.
3. FRONTAGE ROADS SHALL HAVE MINIMUM R/W WIDTH OF 40'.
4. VARIATIONS TO THE EAST, WEST, NORTH, SOUTH RULE MAY BE APPROVED ON CASE-BY-CASE BASIS.
5. HOUSE TELEPHONE DROPS SHALL BE 24" DEEP.

DRAIN TILE BEDDING AND BACKFILL

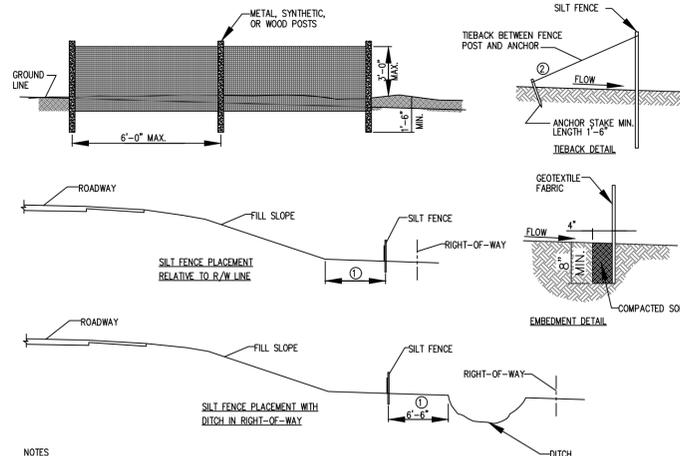
FULL DEPTH HMA REPAIR

PROJECT: KEMPER DITCH - ARM 15-DRAIN TILE RECONSTRUCTION

LOCATION: 1315 N 375 E

SHEET TITLE: SHEET 5-DETAILS

SHEET NO.:



- NOTES**
- ① DIMENSIONS WILL VARY BASED ON RIGHT-OF-WAY AVAILABILITY. SILT FENCE SHALL BE PLACED AS CLOSE AS POSSIBLE TO EDGE OF CONSTRUCTION LIMITS.
 - ② THE SPACING OF THE TIEBACKS SHALL EQUAL THE SPACING OF THE POSTS. ADDITIONAL POST DEPTH OR TIEBACKS MAY BE REQUIRED IN UNSTABLE SOILS.

INSTALLATION

1. THE SILT FENCE SHALL BE ATTACHED TO HARDWOOD STAKES WITH HARDWOOD LATHS AND SECURED WITH FIVE 1-1/2" STAPLES. HARDWOOD STAKES SHALL BE 6' ON CENTER. THE BOTTOM 12" OF FABRIC SHALL BE LEFT UNSECURED TO ALLOW FOR ENTRENCHMENT.
2. A 6" DEEP TRENCH ALONG PROPOSED FENCE LINE SHALL BE CREATED. DRIVE THE STAKES INTO THE TRENCH 8-12" OR UNTIL SECURE. BE SURE TO STRETCH FABRIC TIGHT WHEN DRIVING STAKES. STAKES MUST BE INSTALLED ON THE DOWNHILL OR DOWNSTREAM SIDE OF FENCE. DRAPE LOOSE END OF GEOTEXTILE INTO TRENCH, THEN BACKFILL AND COMPACT ON BOTH SIDES.
3. LIMITED TO 1/4 ACRE PER 100 LINEAR FEET OF FENCE.
4.

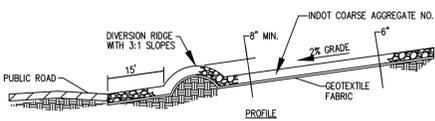
% SLOPE	MAX DISTANCE
< 5:1	100 FEET
5:1 TO 20:1	75 FEET
> 20:1	PROVIDE SURFACE STABILIZATION
5. INSTALL PARALLEL TO THE SLOPE CONTOUR.
6. DO NOT USE FOR SHALLOW CONCENTRATED OR CHANNEL FLOW.

- MAINTENANCE**
1. INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
 2. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. NOTE: ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED BY THE MANUFACTURER.
 3. REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ONE-HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.

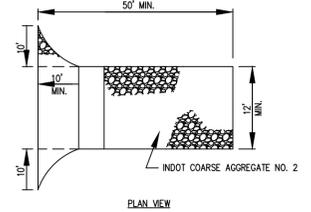
TEMPORARY SILT FENCE

- REQUIREMENTS:**
- MATERIAL: 1-2.5 IN. WASHED STONE (NDOT STONE NO. 2) OVER A STABLE FOUNDATION. THICKNESS: 6 IN. MINIMUM. WIDTH: 12 FT. MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER. LENGTH: 50 FT. MINIMUM. THE LENGTH CAN BE SHORTER FOR SMALL SITES SUCH AS FOR AN INDIVIDUAL HOME, BUT SHALL BE OF SUFFICIENT LENGTH TO PREVENT TRACKING. WASHING FACILITY (OPTIONAL): LEVEL AREA WITH 3 IN. WASHED STONE MINIMUM OR A COMMERCIAL RACK, AND WASTE WATER DIVERTED TO A SEDIMENT TRAP OR BASIN. GEOTEXTILE FABRIC UNDERLAYER: REQUIRED TO PROVIDE GREATER BEARING STRENGTH.

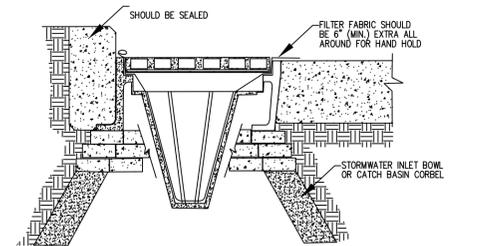
- INSTALLATION:**
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.
 2. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA, AND GRADE AND CROWN FOR POSITIVE DRAINAGE.
 3. IF SLOPE TOWARDS THE ROAD EXCEEDS 2%, CONSTRUCT A 6-8 IN.-HIGH WATER BAR (RIDGE) WITH 3:1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FT. FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD (SEE PROFILE).
 4. INSTALL PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
 5. PLACE STONE TO DIMENSIONS AND GRADE SHOWN IN THE EROSION/SEDIMENT CONTROL PLAN, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
 6. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.



- MAINTENANCE**
- INSPECT ENTRANCE PAD, SEDIMENT DISPOSAL AREA, AND ALL OTHER EROSION CONTROL MEASURES WEEKLY AND AFTER STORM EVENTS OR HEAVY USE. REQUIRED REPAIRS SHOULD BE COMPLETED IMMEDIATELY.
 - RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
 - TOPRESS WITH CLEAN STONE AS NEEDED.
 - IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
 - REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.



TEMPORARY CONSTRUCTION ENTRANCE



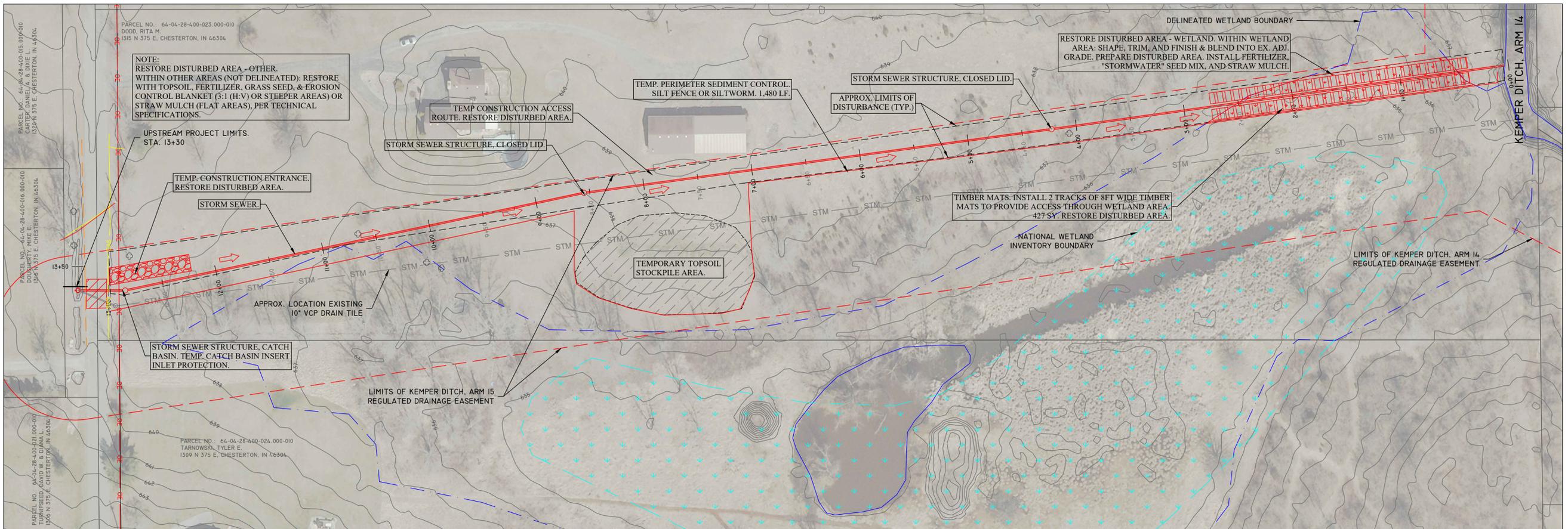
- PURPOSE:**
1. TO PREVENT EXCESSIVE SEDIMENT FROM ENTERING STORM SEWERS AT CURB INLETS, ALLOWING FULL USE OF THE STORM DRAIN SYSTEM DURING THE CONSTRUCTION PERIOD.

- REQUIREMENTS:**
1. BASKET: FABRICATED METAL WITH TOP WIDTH-LENGTH DIMENSIONS SUCH THAT THE BASKET FITS INTO THE INLET WITHOUT CAPS, AND LINE IT WITH GEOTEXTILE FABRIC FOR FILTRATION.

- INSTALLATION:**
1. INSTALL BASKET CURB INLET PROTECTIONS AS SOON AS INLET BOXES ARE INSTALLED IN A NEW DEVELOPMENT OR BEFORE LAND DISTURBING ACTIVITIES BEGIN IN A STABILIZED AREA.
 2. REMOVE THE GRATE AND PLACE THE BASKET IN THE INLET.
 3. CUT AND INSTALL A PIECE OF FILTER FABRIC LARGE ENOUGH TO LINE THE INSIDE OF THE BASKET AND EXTEND AT LEAST 6" BEYOND THE FRAME.
 4. REPLACE THE INLET GRATE, WHICH ALSO SERVES TO ANCHOR THE FABRIC.
 5. FOLLOW INSTRUCTIONS AS PROVIDED BY MANUFACTURER.

- MAINTENANCE:**
1. INSPECT WITHIN 24 HOURS AFTER EACH STORM EVENT.
 2. REMOVE BUILD-UP SEDIMENT AND REPLACE THE GEOTEXTILE FABRIC AFTER EACH STORM EVENT.
 3. REPLACE BASKET EVERY SIX (6) MONTHS.
 4. REPLACE BASKET AFTER ANY OIL, GASOLINE OR SOLVENT SPILL, OR IF THERE IS A HOLE IN THE FABRIC.

CATCH BASIN INSERT INLET PROTECTION



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LOCATION:	1315 N 375 E
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