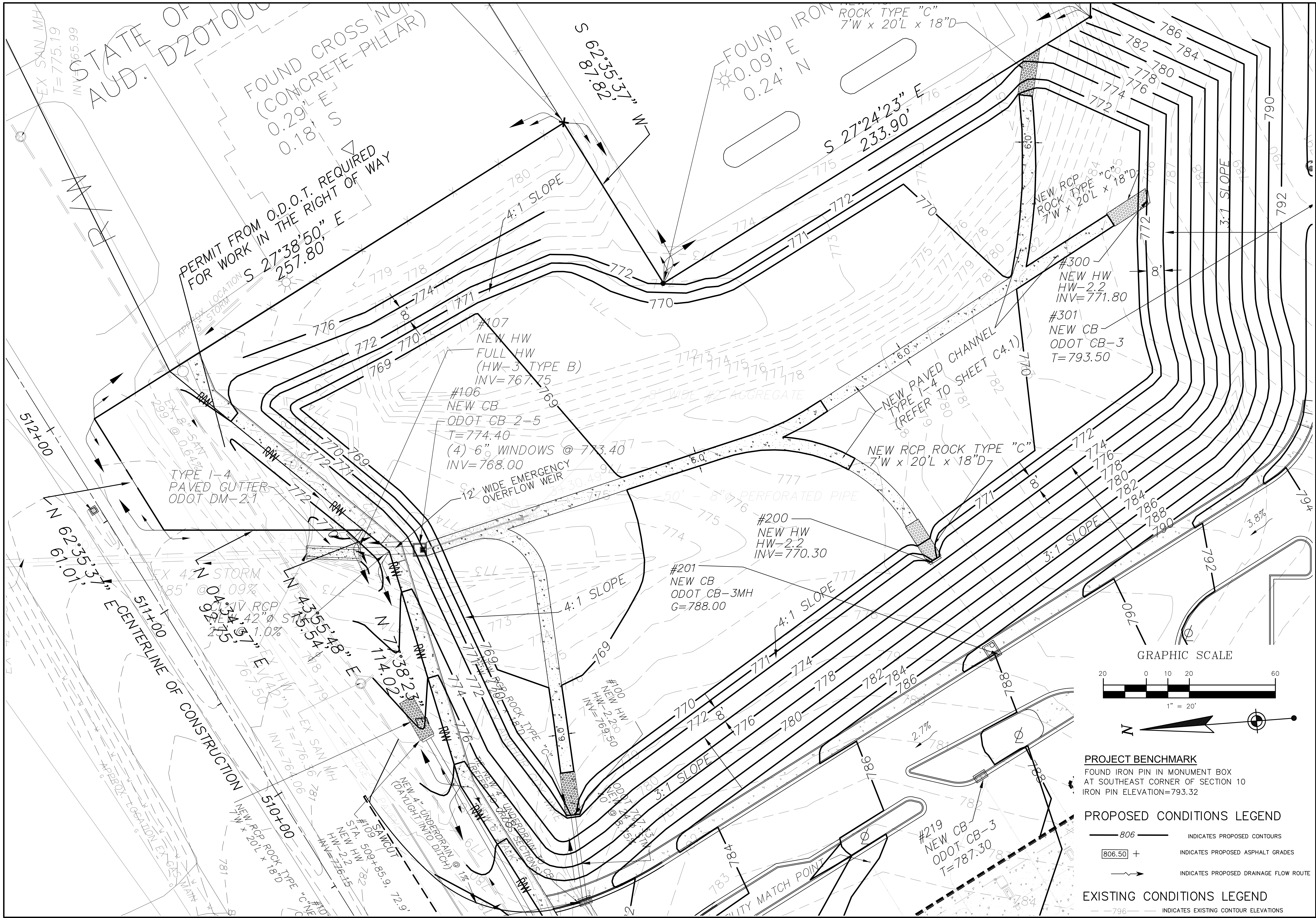


GRAPHIC SCALE

20 0 10 20 60

1" = 20'

PROJECT BENCHMARK

FOUND IRON PIN IN MONUMENT BOX
AT SOUTHEAST CORNER OF SECTION 10
IRON PIN ELEVATION=793.32

PROPOSED CONDITIONS LEGEND

—806—	INDICATES PROPOSED CONTOURS
806.50 +	INDICATES PROPOSED ASPHALT GRADES
→	INDICATES PROPOSED DRAINAGE FLOW ROUTE

EXISTING CONDITIONS LEGEND

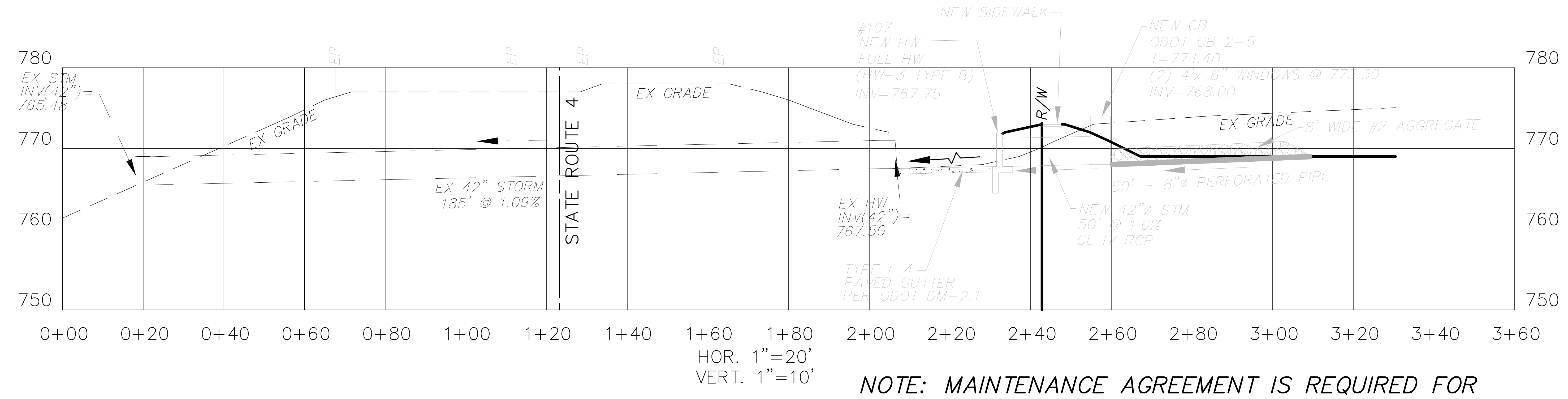
— —796— —	INDICATES EXISTING CONTOUR ELEVATIONS

0 20 40
HORIZONTAL
SCALE IN FEET

CALCULATED JK
CHECKED TG

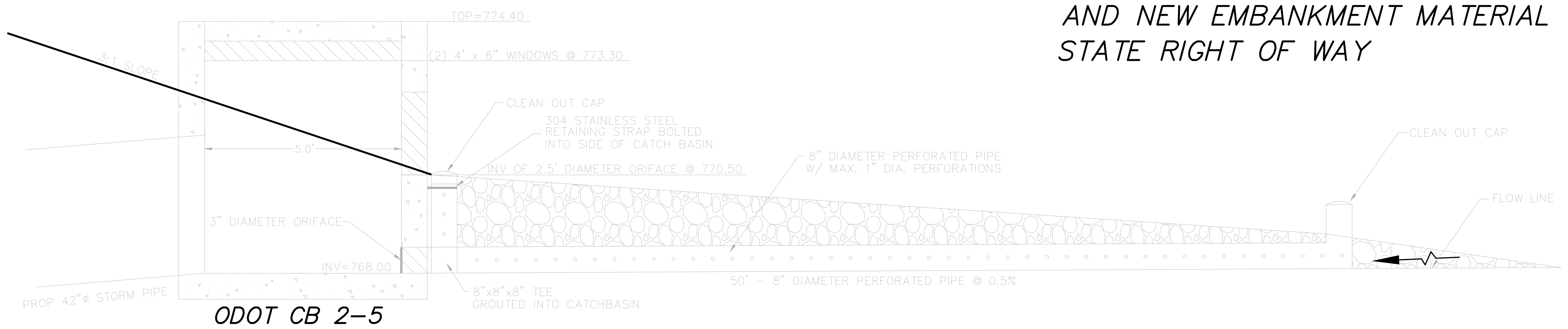
GRADING PLAN
100% BID/PERMIT ISSUE 1/27/17

STATE ROUTE 4
LIBERTY TOWNSHIP



HOR. 1"=20'
VERT. 1"=10'

NOTE: MAINTENANCE AGREEMENT IS REQUIRED FOR STORM STRUCTURE, ROCK CHANNEL PROTECTION, AND NEW EMBANKMENT MATERIAL WITHIN STATE RIGHT OF WAY

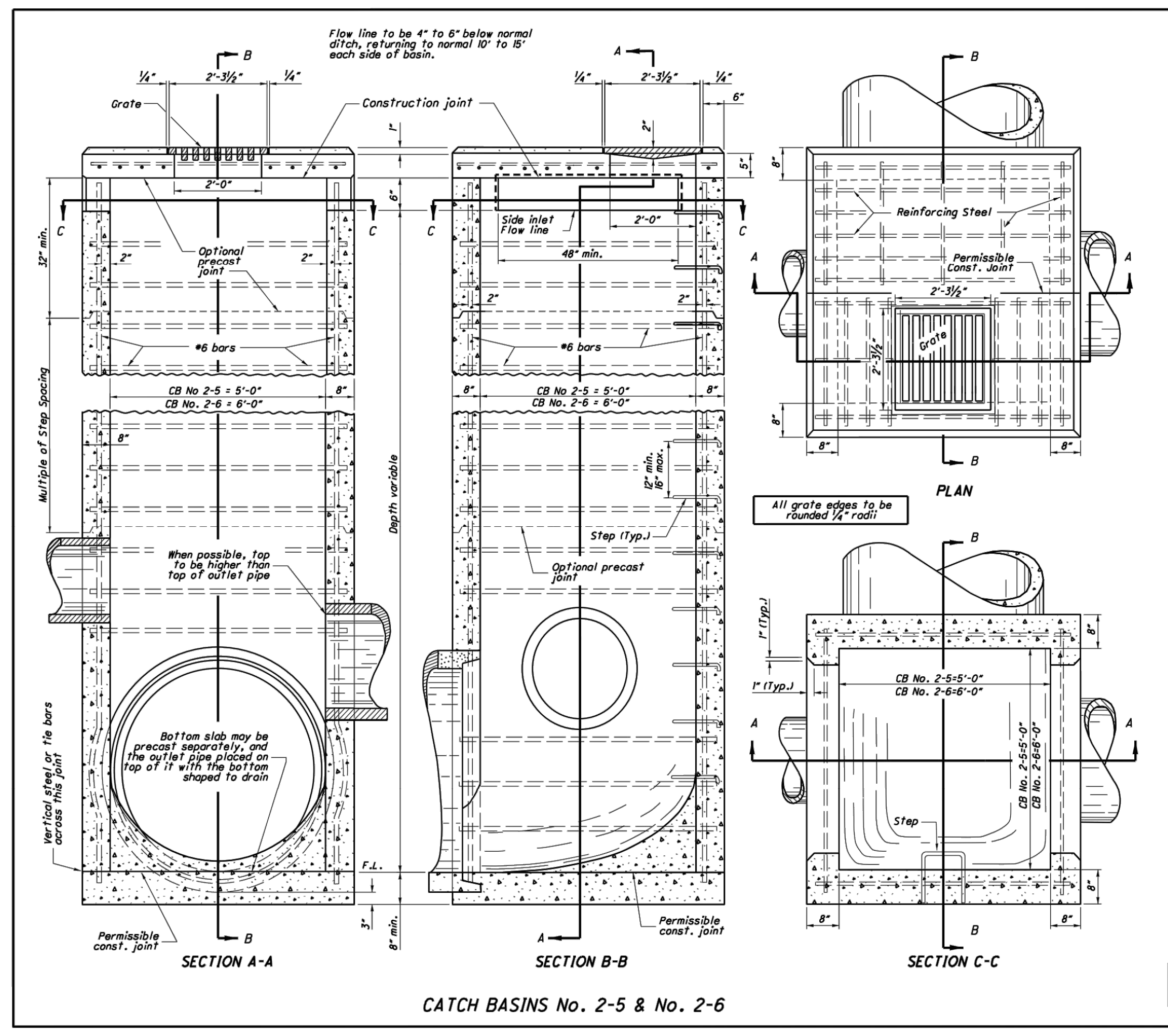


ODOT CB 2-5

SECTION A – A

NOT TO SCALE

NOTE: THIS IS THE FINAL CONFIGURATION FOR THE STORM WATER QUALITY/DETENTION POND.
THIS STEP TO BE COMPLETED ONCE THE SITE IS STABILIZED AND THE SEDIMENT IS REMOVED FROM THE BASIN
SEE SHEET EC1.3 FOR THE CONFIGURATION OF THE OUTLET STRUCTURE FOR THE SEDIMENT CONTROL DURING CONSTRUCTION PHASE



CATCH BASINS No. 2-5 & No. 2-6

NOTES

GRATE: See details on **SCD CB-1.1.** Minimum weight of grate: 120 lbs., or meets the requirements of CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

If necessary, bicycle safe grates will be specifed in the plans. Furnish Neenah No. R-4859-C or East Jordan No. 5110 Type M3 bicycle safe grates or approved equals.

Cast the following text into the top of the grate:

"DUMP NO WASTE" and **"DRAINS TO WATERWAY"**

Print text in bold, capital letters at least ½" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct reinforced concrete walls 8" thick, as shown. Construct brick walls used in place of reinforced concrete with a nominal thickness of 12". Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and handling without damage and at least equivalent to reinforced cast-in-place construction.

STEPS: Provide steps where the depth exceeds 6'. Meet the requirements of **SCD MH-1.1.**

CONCRETE: Use 4000 psi compressive strength for Cast-in-place concrete. Meet the requirements of CMS 706.13 for all precast concrete and mark with the catch basin number.

REINFORCEMENT: Provide #6 bars spaced 6" center to center and #6 tie bars spaced as shown for top reinforcing. Main bars to clear bottom of slab by 1¼". Side wall to be reinforced with #6 bars horizontal in each side, 6' long for CB No. 2-5 and 7' long for CB 2-6, spaced at 1' center to center, and #6 bars in each corner length equals depth plus 1'.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, the location and the elevation are at the top center of the grate. When side openings are provided, the elevation is at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-5 and CB No. 2-6 is the outside diameter (O.D.) of the outlet pipe plus 7".

OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill all voids per CMS 611.

SIDE INLETS: Provide inlets on both sides of the No. 2-5 and 2-6 catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin. Do not use catch basins with side inlets within the Clear Zone.

PAYMENT: All materials and labor, including excavation and backfilling, are paid for under **Item 611 - Catch Basin, No. 2-5 or Item 611 - Catch Basin, No. 2-6.**

CATCH BASIN	OUTLET PIPE SIZE
2-5	48" to 54"
2-6	60" to 72"

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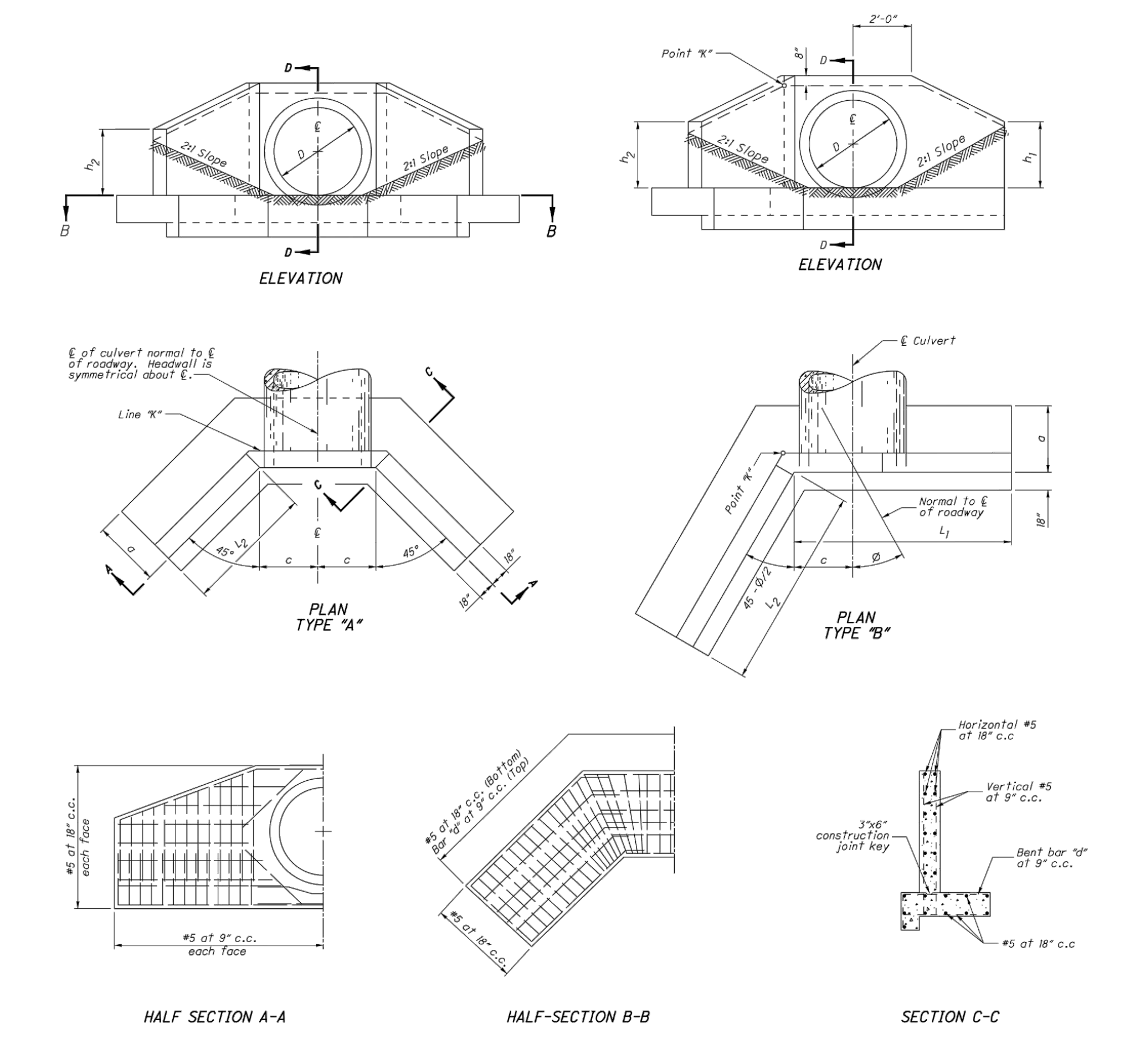
OFFICE OF HYDRAULIC ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING
CATCH BASINS No's 2-5 & 2-6
SCD NUMBER
CB-1.3
1/1



NOTES

APPLICATION: Provide Full Height Headwalls for skewed and non-skewed culverts having a diameter or rise of 42" to 84" inclusive. Use Type "A" when the skew angle (ϕ) is ten degrees or less and Type "B" when the skew angle is over ten degrees.

CONCRETE: Use 4000 psi compressive strength concrete.

REINFORCING STEEL: Provide epoxy coated #5 bars.

DETAILS AND QUANTITIES: Are shown for circular sections only. When used with reinforced elliptical concrete pipe or corrugated metal pipe arches, adjust dimensions and quantities to conform to those listed for the nearest size circular pipe. Apply the dimensions established by vertical diameter to span. Round all calculated dimensions established by horizontal diameter to the nearest 1". Chamfer all exposed corners ¾".

FOUNDATION: Where the soil borings indicate a bearing capacity of less than 2,600 pounds per square foot, increase the width of the footing.

HEADWALL LOCATION: Determine by the intersection of the embankment slope at the back of the headwall at point "K". Provide 2:1 slopes adjacent to the headwall.

PAYMENT: Item 602 Concrete Masonry includes reinforcing.

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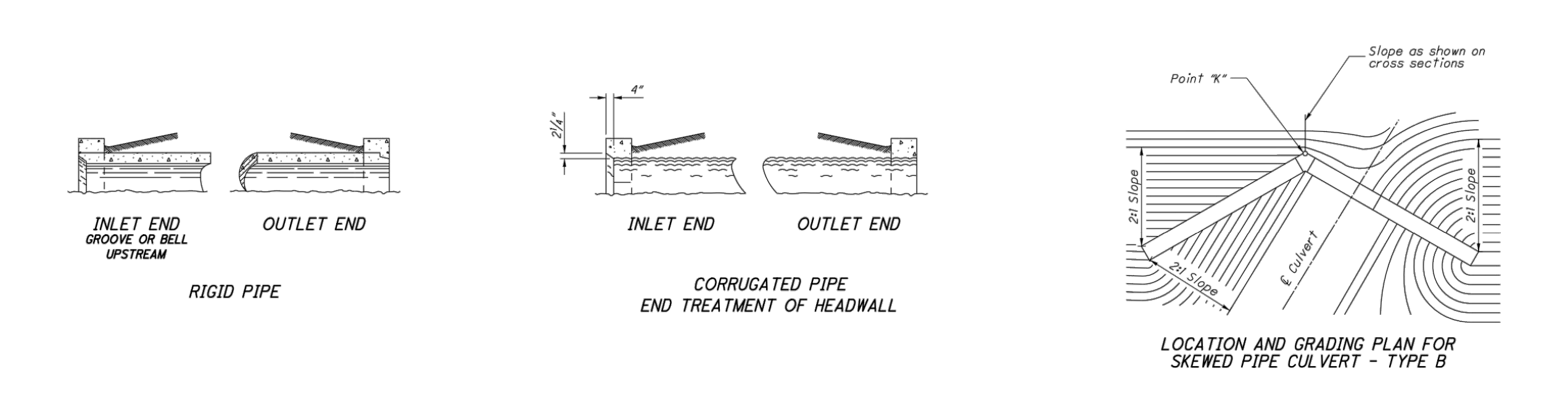
FULL-HEIGHT HEADWALLS
HW-1.1
1/2



RIGID PIPE

CORRUGATED PIPE
END TREATMENT OF HEADWALL

LOCATION AND GRADING PLAN FOR SKEWED PIPE CULVERT - TYPE B

FULL-HEIGHT HEADWALLS (English)

PIPE DIA. D	H	a	b	c	Bar# d	ø ≈ 0°					ø ≈ 15°							ø ≈ 30°							ø ≈ 45°							PIPE DIA. D
						L_2	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	L_1	L_2	h_1	h_2	Conc. CMP (cy)	Conc. RCP (cy)	Steel (lbs.)	
42"	4'-11"	3'-3"	1'-6"	2'-6"	#5	3'-7"	3'-1"	7.0	6.7	598	8'-9"	4'-6"	3'-8"	3'-2"	7.3	7.1	619	7'-10"	5'-9"	3'-2"	3'-3"	7.5	7.3	633	7'-10"	7'-9"	3'-2"	3'-3"	8.7	8.5	718	**42"**
48"	5'-5"	3'-6"	1'-6"	2'-9"	#5	4'-4"	3'-4"	8.5	8.2	793	10'-0"	5'-4"	4'-1"	3'-5"	9.0	8.7	776	8'-9"	6'-10"	3'-5"	3'-6"	9.1	8.8	801	8'-9"	9'-2"	3'-5"	3'-7"	10.6	10.3	925	**48"**
54"	5'-11"	3'-9"	1'-6"	3'-0"	#5	5'-2"	3'-8"	10.3	10.0	1,069	11'-4"	6'-3"	4'-6"	3'-8"	10.9	10.5	1,026	9'-8"	7'-11"	3'-8"	3'-9"	10.8	10.5	1,024	9'-8"	10'-7"	3'-8"	3'-10"	12.6	12.2	1,188	**54"**
60"	6'-6"	4'-0"	1'-6"	3'-3"	#5	5'-11"	3'-11"	12.3	11.8	1,149	12'-7"	7'-2"	4'-10"	4'-0"	12.9	12.4	1,174	10'-7"	9'-0"	3'-10"	4'-1"	12.7	12.3	1,157	10'-7"	12'-0"	3'-10"	4'-1"	14.8	14.3	1,354	**60"**
72"	7'-7"	4'-6"	1'-7"	3'-9"	#7	7'-5"	4'-5"	17.0	16.2	1,783	15'-1"	8'-11"	5'-7"	4'-6"	17.8	17.1	1,811	12'-5"	11'-2"	4'-3"	4'-7"	17.3	16.6	1,788	12'-5"	14'-10"	4'-3"	4'-8"	20.2	19.6	2,076	**72"**
84"	8'-8"	5'-0"	1'-10"	4'-3"	#8	9'-0"	5'-0"	23.7	22.8	2,595	17'-7"	10'-9"	6'-4"	5'-1"	24.8	23.9	2,596	14'-7"	13'-4"	4'-10"	5'-2"	24.1	23.3	2,511	14'-3"	17'-8"	4'-8"	5'-2"	27.9	27.0	2,990	**84"**

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FULL-HEIGHT HEADWALLS
HW-1.1
2/2

0 20 40
HORIZONTAL SCALE IN FEET

CALCULATED
JK
CHECKED
TG

DETAILS & NOTES
100% BID/PERMIT ISSUE 1/27/17

STATE ROUTE 4
LIBERTY TOWNSHIP