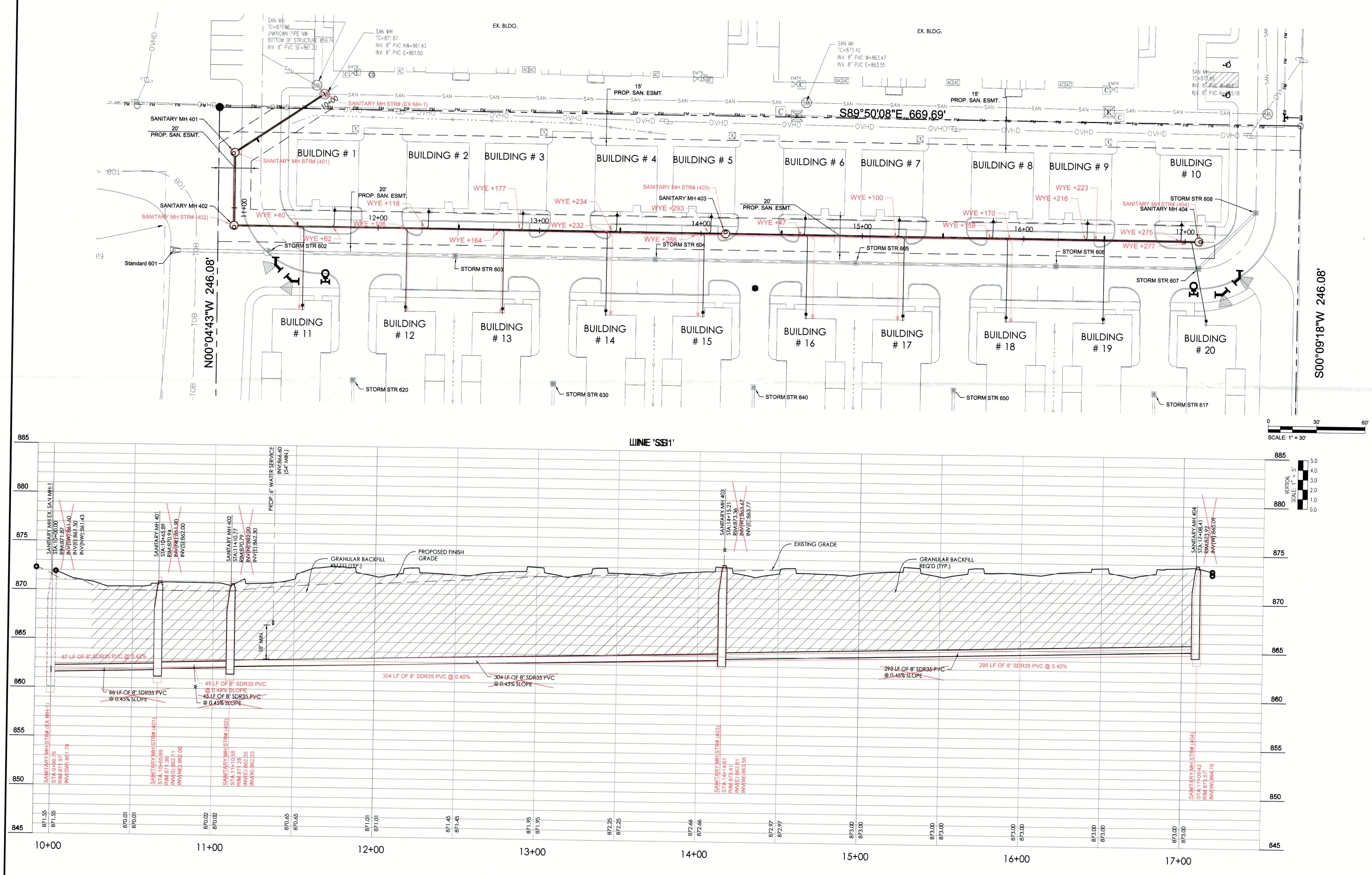
RECORD DRAWING

These compiled engineering record drawings are a compilation of a copy of the original sealed engineering design drawings for this project, modified by addenda, change orders and information furnished by the contractor. The information shown on these compiled engineering record drawings that was provided by the contractor or others not associated with me cannot be verified for accuracy or completeness. My compilation of this information does not relieve the contractor of responsibility for errors resultant to incorrect, incomplete or omitted data on the contractor's as-built record drawings - nor does it relieve the contractor of responsibility for non-conformance with the original contract documents.

ASHTON L. FRITZ
REGISTERED
No. PE10707583
STATE OF INDIANA
PROFESSIONAL ENGINEER

Ashton L Fritz
1/12/2018



Fritz Engineering Services, LLC
14020 Mississinewa Drive
Carmel, Indiana 46033
P: 317.324.8695 F: 317.324.8695
www.Fritz-Eng.com

REVISIONS AND ISSUES | DATE | BY

GENERAL NOTES / LEGEND:

PROJECT:
PENDLETON PLACE APTS-PHASE III RECORD DRAWINGS

PROJECT LOCATION:
PIONEER TRACE
PENDLETON, IN 46064
MADISON COUNTY

SECTION, TOWNSHIP, RANGE:
S19, T18N, R7E

CLIENT:
HOUSE INVESTMENTS
10220 N. ILLINOIS STREET
INDIANAPOLIS, IN 46290

PLAN DATE: 1/16/2018		
DESIGN: AF	CHECK: AF	DRAWN: AF
PROJECT NO. 1801001		

SHEET NO.
SANITARY PLAN & PROFILE RECORD DRAWING
C402-RD

CONSTRUCTION PLANS FOR:

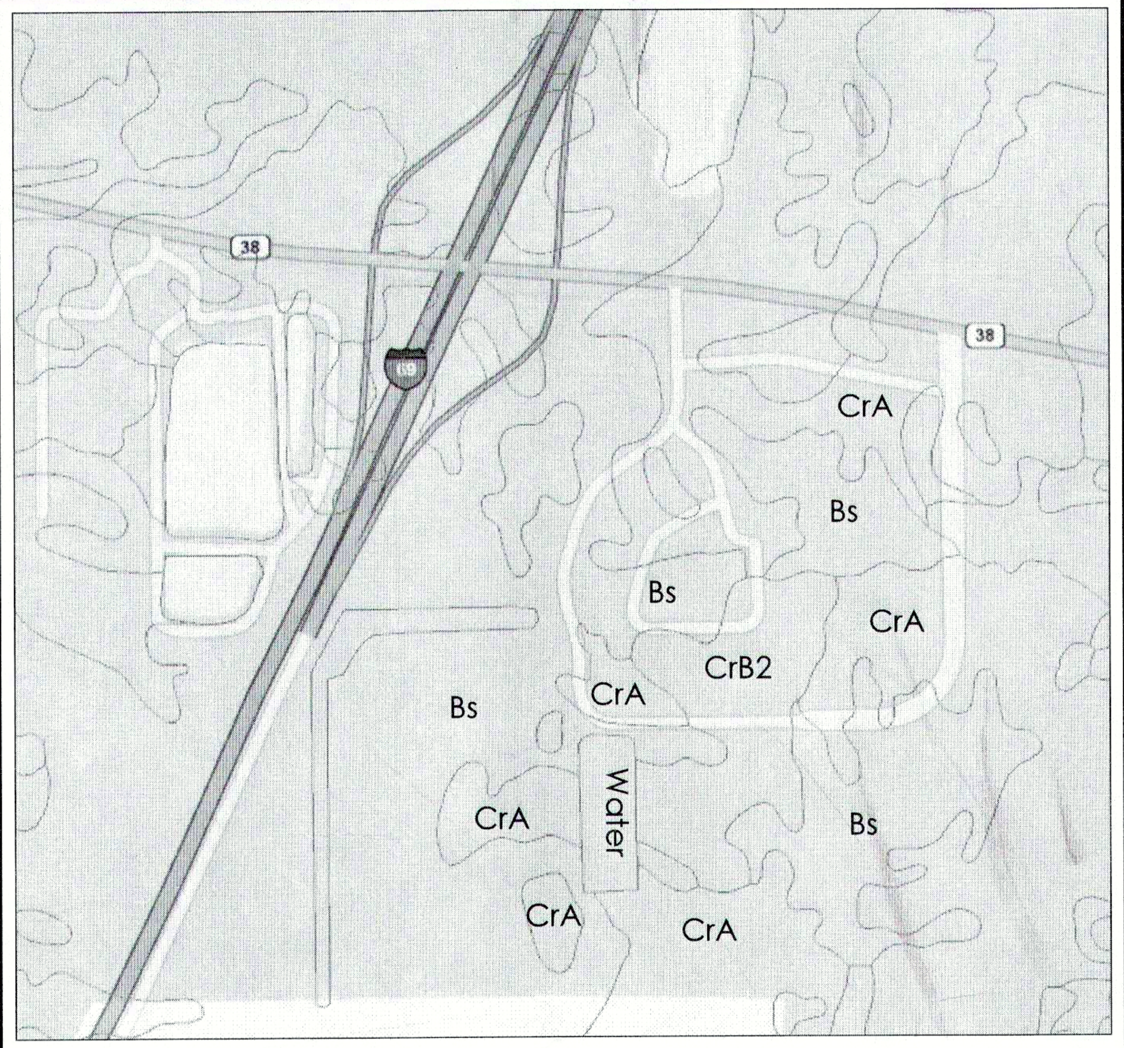
PENDLETON PLACE APTS., PHASE III

PIONEER TRACE

PENDLETON, MADISON, IN

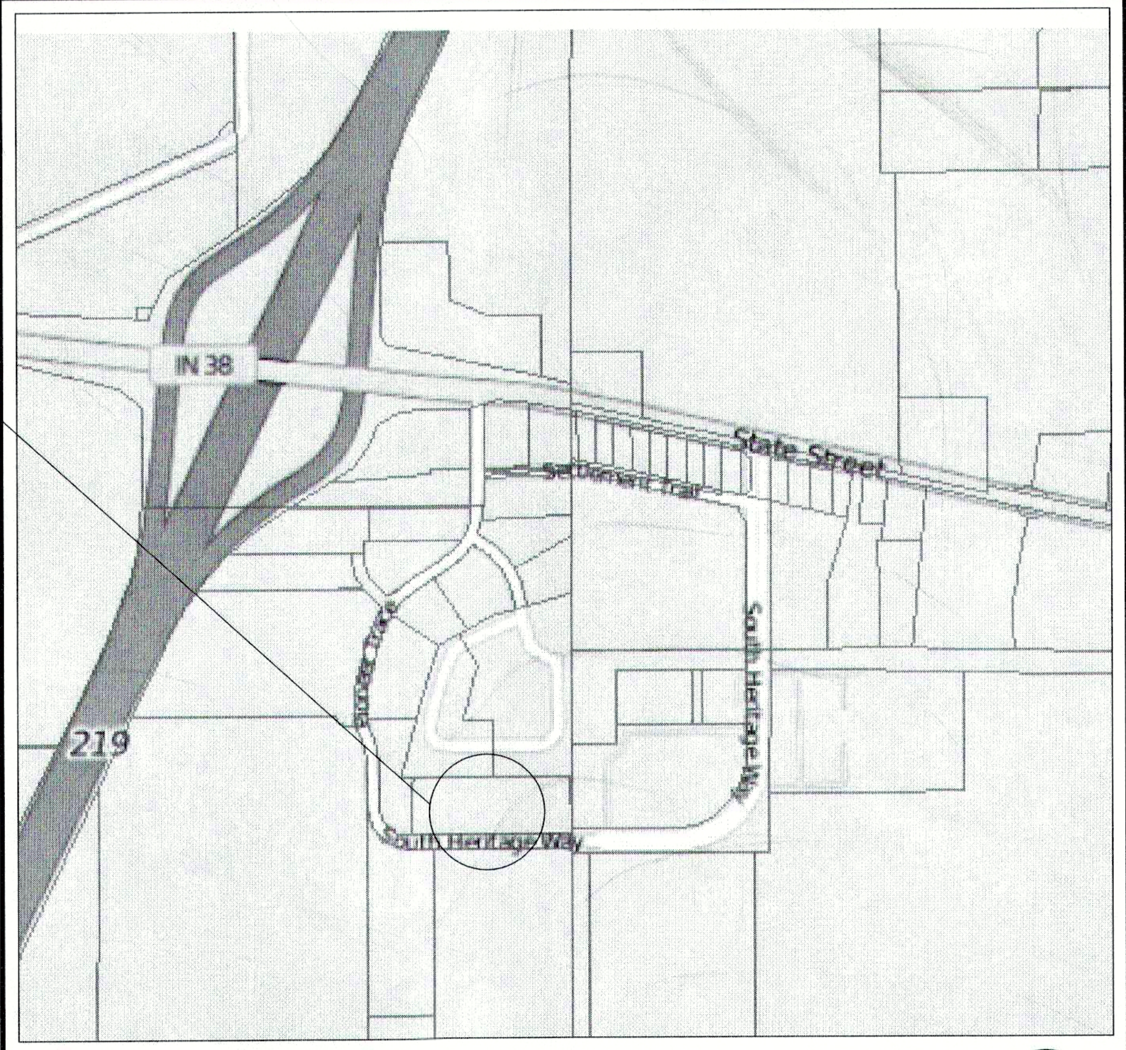
SECTION 19, TOWNSHIP 18N, RANGE 7E

10-3-16
KEEP !!!



SOILS MAP

SITE LOCATION



SITE VICINITY & ZONING MAP

PLANS PREPARED FOR:

R&B ARCHITECTS
3202 N. MERIDIAN STREET
INDIANAPOLIS, IN 46202
Contact Person: Ron Searcy
ron@randbarchitects.com
317-636-3211

OPERATING AUTHORITIES

Pendleton Planning & Zoning
100 West State Street
P.O. Box 230
Pendleton, IN 46064
Contact: Tim McClintick
(765) 778-2173

Pendleton Municipal Utilities
100 West State Street
P.O. Box 230
Pendleton, IN 46064
Contact: Donnie Myers
(765) 288-0094

Madison County Soil and Water Conservation District
182 West 300 North, Suite D
Anderson, IN 46012
Contact: Steve Schmidt
(765) 644-4249

Fall Creek Regional Waste District
9378 S. CR 650 W
P.O. Box 59
Pendleton, IN 46064
Contact: Tim McCurdy
(765) 778-7544

GENERAL NOTES

1. The construction plans shall govern over any other form of media, which includes digital files of this project.
2. The contractor shall be responsible for obtaining or verifying that all permits and approvals are obtained from the respective city, county, state & federal agencies prior to starting construction.
3. It shall be the contractors responsibility to determinate the exact location of all existing utilities in the vicinity of the construction area prior to starting construction. Once all utilities have been located, it will be the contractor's responsibility to maintain in service all existing utilities encountered during construction unless otherwise indicated in the construction drawings.
4. Before working with or around existing utilities, the applicable utility company shall be contacted by the contractor. It shall be the contractor's responsibility to notify and coordinate construction with all respective utilities.
5. All construction methods and materials must conform to current standards and specifications for the governing municipality requirements.
6. Maintenance of traffic needed for this project shall be installed and maintained per INDOT specifications and the indiana MUTCD Manual.
7. The contractor shall be responsible for all field dimensions and shall verify all dimensions on the site prior to start of construction. If any discrepancies are found in these plans from actual field conditions, the contractor shall notify the engineer immediately.
8. All quantities given on these construction plans or in the scope of work section are estimates and shall be confirmed by the bidding contractors.
9. It shall be the responsibility of the developer and contractor to maintain quality control throughout this project.
10. Bearings, dimensions, and easements are shown for reference only. See record surveys and plats for exact information.

SHEET INDEX

TOWN OF PENDLETON PLANNING AND ZONING
100 W STATE ST. P.O. BOX 230
PENDLETON, IN 46016
(765) 477-1134

FLOOD ZONE:

The survey subject tract lies within Flood Hazard Zone 'X' 'Un-shaded', areas determined to be outside 0.2% annual chance floodplain, as scaled off the FEMA FIRM Map Number 18095C0307E, dated June 9, 2014, and FEMA FIRM Map Number 18095C0244E, dated June 9, 2014.

INDIANA STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION, TO BE USED AS SUPPLEMENTAL INFORMATION WITH THESE PLANS.

REVISIONS

SHEETS	REVISION DESCRIPTION	DATE

ASHTON L. ... RITZ
STATE OF INDIANA
PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION

TERRA SITE DEVELOPMENT
1307 W. 161st Street Westfield, IN 46074
P: 317.399.1216 F: 317.663.3049
www.TERRAsitedev.com

CIVIL ENGINEERS
LAND SURVEYORS
DEVELOPMENT CONSULTANTS
GEOTECHNICAL
ENVIRONMENTAL
CONSTRUCTION STAKING
CONSTRUCTION MAT. TESTING

PLAN DATE: 7/5/2016
PROJECT NO. 1601009
SHEET NO. **C100**

SITE/LAYOUT NOTES:

1) See architectural plans for all building dimensions. Any dimensions shown herein shall be considered conceptual.
2) All dimensions are to edge of pavement or face of curb, unless noted otherwise.
3) All dimensions are to face of brick or facing material, unless noted otherwise.
4) All parking area stripes are to be 4" white paint. Handicapped parking areas and access aisles shall be 4" blue paint.
5) Provide smooth transitions from new areas to existing features as appropriate.
6) The edge of existing asphalt pavement shall be properly sealed with a tack coat material in all areas where new asphalt pavement is indicated to join existing pavement.
7) Provide chamfer ends at curbs.
8) Verify sign locations & sign requirements with local governing municipality.

GRADING NOTES:

1) Earthwork & grading shall not start until erosion control measures have been properly installed.
2) Occupational safety and health administration (OSHA) standards for excavations; final rule 29 cfr part 1926, subpart "p" applies to all excavations exceeding five (5) feet in depth.
3) Provide positive drainage that assures no ponding in all areas. After installation, contractor to test for, and correct, in any, standing water conditions are present.
4) All proposed spot elevations are the final pavement and grade elevations. See appropriate details and specifications to determine the subgrade elevations below finish grade elevations for construction.
5) All sanitary manholes in non-paved areas shall be 3" above grade.
6) The maximum slope to be used in non-paved areas shall be 3:1.
7) All A.D.A. parking spaces & access aisles shall be level with surface slopes not to exceed 2% (1:50) in any direction as which to comply with a.D.A requirements.
8) All sidewalks cross slopes shall not exceed 2% (1:50) unless noted otherwise.
9) Provide smooth transitions from new areas to existing features as appropriate.

UTILITY NOTES:

1) See architectural plans for detailed information and exact locations for utility connections into the building.
2) The contractor is responsible with coordinating with the utility companies for connection of the proposed utility lines for the project site.
3) For viewing clarity of these construction plans, the pipes or structures may not be drawn to scale.
4) A minimum of 18 inches of vertical separation and 10 feet of horizontal separation shall be provided between water and sanitary lines. If this separation cannot be achieved, than the sanitary sewer must be constructed of water works grade ductile iron pipe with mechanical joints and fittings.
5) A minimum of 18 inches of vertical separation shall be provided between storm and sanitary sewers. If the vertical separation between the storm and sanitary lines cannot be achieved, than a concrete saddle shall be used at these crossings.
6) When connections are to be made to existing piping and structures or where construction is in the vicinity of existing piping, the location and elevation of the existing piping and structures shall be field verified by the contractor. If any discrepancies are found, then the engineer shall be notified immediately.

SURVEY NOTES:

1) The utilities indicated on these construction plans and on the survey may not be a compete inventory of all existing utilities currently on or near the site. The size and location of these utilities may be approximate. The engineer shall not be held liable for any inaccurate utility information indicated, or not indicated on this survey.
2) Topographic information provided herein was obtained by field work performed by TERRA Site Development, Inc.
3) Boundary information shown hereon is from an ALTA survey performed on this site. Please see ALTA/ACSM Land Title Survey for further information.

DEMOLITION NOTES:

1) It shall be the responsibility of the contractor to remove any materials and/or structures not located on this survey.
2) It shall be the responsibility of the contractor to verify all existing utilities and their locations pertaining to their phase of work, and to verify which utilities will be removed by the utility company. Any and all utilities not removed by the utility company shall be removed by the contractor.
3) Utility locations shown are approximate and shall be relocated and/or capped at the Right-Of-Way line and abandoned before construction at no additional cost to the owner.
4) The owner gets the first right of salvage.
5) All demolition material not being salvage shall be properly disposed of offsite by the contractor.
6) The contractor shall obtain all demolition permits required by the local and state agencies.
7) The contractor shall maintain streets and shared drives free and clear of sediment and debris.
8) The contractor is responsible for the protection of all existing utility lines unless otherwise stated.
9) Contractor shall coordinate all temporary shut down of existing utility services with the appropriate utility department, owner, authority, etc.
10) Contractor shall coordinate any necessary street or drive closures required.

ABBREVIATIONS AND TERMS

IE/INV	= INVERT ELEVATION
TC	= TOP OF CURB
RIM	= RIM / TOP OF CASTING
GUT	= GUTTER
RCP	= REINFORCED CONCRETE PIPE
HDPE	= HIGH DENSITY POLYETHYLENE PIPE
SSD	= SUB-SURFACE DRAIN
UD	= UNDERDRAIN
MH	= MANHOLE
STR	= STRUCTURE
RD&UE	= REGULATED DRAIN AND UTILITY EASEMENT
D&UE	= DRAINAGE AND UTILITY EASEMENT
SD&UE	= SANITARY, DRAINAGE, AND UTILITY EASEMENT
W&UE	= WATER AND UTILITY EASEMENT
SE	= SANITARY EASEMENT
SAN	= SANITARY SEWER
HC	= HANDICAP RAMP
ME	= MATCH EXISTING
STM	= STORM SEWER
MPE	= MINIMUM PAD ELEVATION
NP	= NORMAL POOL
ELEV	= ELEVATION
TYP	= TYPICAL
PR	= PROPOSED
EX	= EXISTING
R	= RADIUS
B-B	= BACK TO BACK
ROW	= RIGHT OF WAY
LF	= LINEAR FEET

PROPOSED LEGEND

FLH	TEMP. FLUSH HYDRANT		SUB-SURFACE DRAIN
	HYDRANT		FLOW LINE
	VALVE	FD	FOUNDATION DRAIN
	TEE	TV	CABLE TV LINE**
	ADAPTER	E	ELECTRIC LINE**
	BEND	FO	FIBER OPTIC LINE
	BLOW-OFF	UD	STORM UNDERDRAIN
	THRUST BLOCK		STORM SEWER
	PLUG		SANITARY SEWER
	REDUCER	FM	FORCE MAIN
	M.J. SLEEVE	G	GAS LINE
	CROSS	T	TELEPHONE LINE**
M	WATER METER	W / 8"W	WATER LINE
PIV	POST INDICATOR VALVE		
	FIRE CONNECTION		
T	TRANSFORMER PAD		
R	RELOCATED ELECTRIC/TELEPHONE POLE		
	SIGN		FLOW ARROW
	HANDICAP PARKING	785	EXISTING CONTOURS
CO	CLEAN OUT	785	PROPOSED CONTOURS
	STORMTECH STORM CHAMBER		SWALE
	SANITARY MANHOLE	℄:XXX.XX	FLOW LINE ELEVATION
	STORM MANHOLE	XXX.XX	SPOT ELEVATION
	STORM COMBINATION INLET	XXX.XX H.P.	HIGH POINT ELEVATION
	STORM GRATE INLET	XXX.XX L.P.	LOW POINT ELEVATION
	STORM BEEHIVE/YARD DRAIN	TC:XXX.XX BC:XXX.XX	TOP/BOTTOM CURB ELEVATION
	STORM GRATE INLET	TW:XXX.XX BW:XXX.XX	TOP/BOTTOM WALL ELEVATION
	BMP/AQUA-SWIRL		

**PREFIX FOR UTILITY LINES:
UG - UNDERGROUND
OH - OVERHEAD

ME - MATCH EXISTING GRADE

SURVEY/EXISTING CONDITION LEGEND

Br

SECTION MONUMENT	UTILITY POLE	FIRE HYDRANT
BENCHMARK	STRAIN POLE	WATER MANHOLE
ROW MONUMENT	POWER POLE	WELL
PROPERTY MONUMENT	LIGHT POLE	WATER VALVE
STAND PIPE	TELEPHONE POLE	SPRINKLER VALVE
POST	GUY POLE	SPRINKLER
AIR CONDITIONER	TELEPHONE BOOTH	WATER SPIGOT
STORAGE TANK	TELEPHONE RISER	MONITORING WELL
SEPTIC TANK	TELEPHONE MANHOLE	WATER MATER
GREASE PIT TANK	CABLE RISER	GAS MANHOLE
FOUNTAIN	CABLE MANHOLE	GAS STORAGE WELL
SHRUB	LOOP DETECTOR	GAS METER
STUMP	LOOP DETECTOR HOUSING	NATURAL GAS WELL
SATELITE DISH	SANITARY MANHOLE	GAS VALVE
ANTENNA	WET WELL	PROPANE TANK
COAL CHUTE	LIFT STATION	PETROLEUM TEST WELL
GUY WIRE	FORCE MAIN MANHOLE	PETROLEUM VALVE
SIGN	CLEAN OUT	TRAFFIC MANHOLE
CROSS LIGHT	COMBINATION MANHOLE	HAND HOLE
GROUND LIGHT	STORM MANHOLE	CONTROLLER CABINET
FLAG POLE	CURB INLET	TRAFFIC SIGNAL
MAST ARM POLE	CATCH BASIN	ELECTRIC MANHOLE
	DROP INLET	ELECTRIC RISER
	END SECTION	ELECTRIC METER
	FLAP GATE	TRANSFORMER
	DOWN SPOUT	ELECTRIC OUTLET

BARB-WIRE FENCE	TV	CABLE TV LINE**
WOOD FENCE	E	ELECTRIC LINE**
RAIL WOVEN FENCE	FO	FIBER OPTIC LINE
CHAIN-LINK FENCE		STORM SEWER
IRON FENCE		SANITARY SEWER
PRIVACY FENCE	FM	FORCE MAIN
GUARD RAIL	G	GAS LINE
FLOW LINE	T	TELEPHONE LINE**
TREE/SHRUB LINE	W	WATER LINE

**PREFIX FOR UTILITY LINES:
UG - UNDERGROUND
OH - OVERHEAD

"IT'S THE LAW"

811

Know what's below.
Call before you dig.
2 WORKING DAYS BEFORE YOU DIG.

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TERRA
SITE DEVELOPMENT
1307 W. 161st Street Westfield, IN 46074
P: 317.399.1216 F: 317.663.3049
www.TERRAsitedev.com

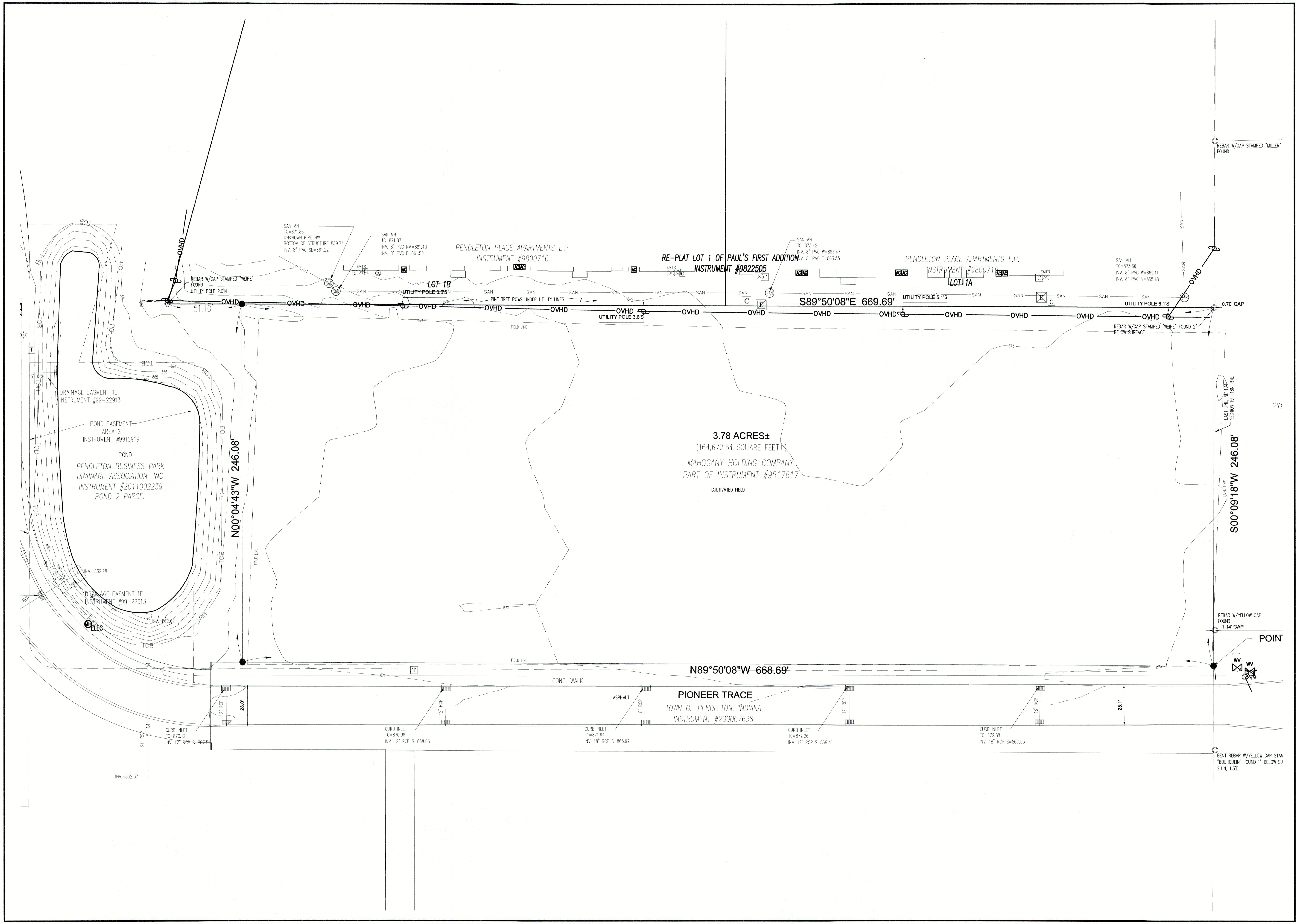
DATE	BY

CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E

R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

GENERAL INFORMATION PLAN

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C101		



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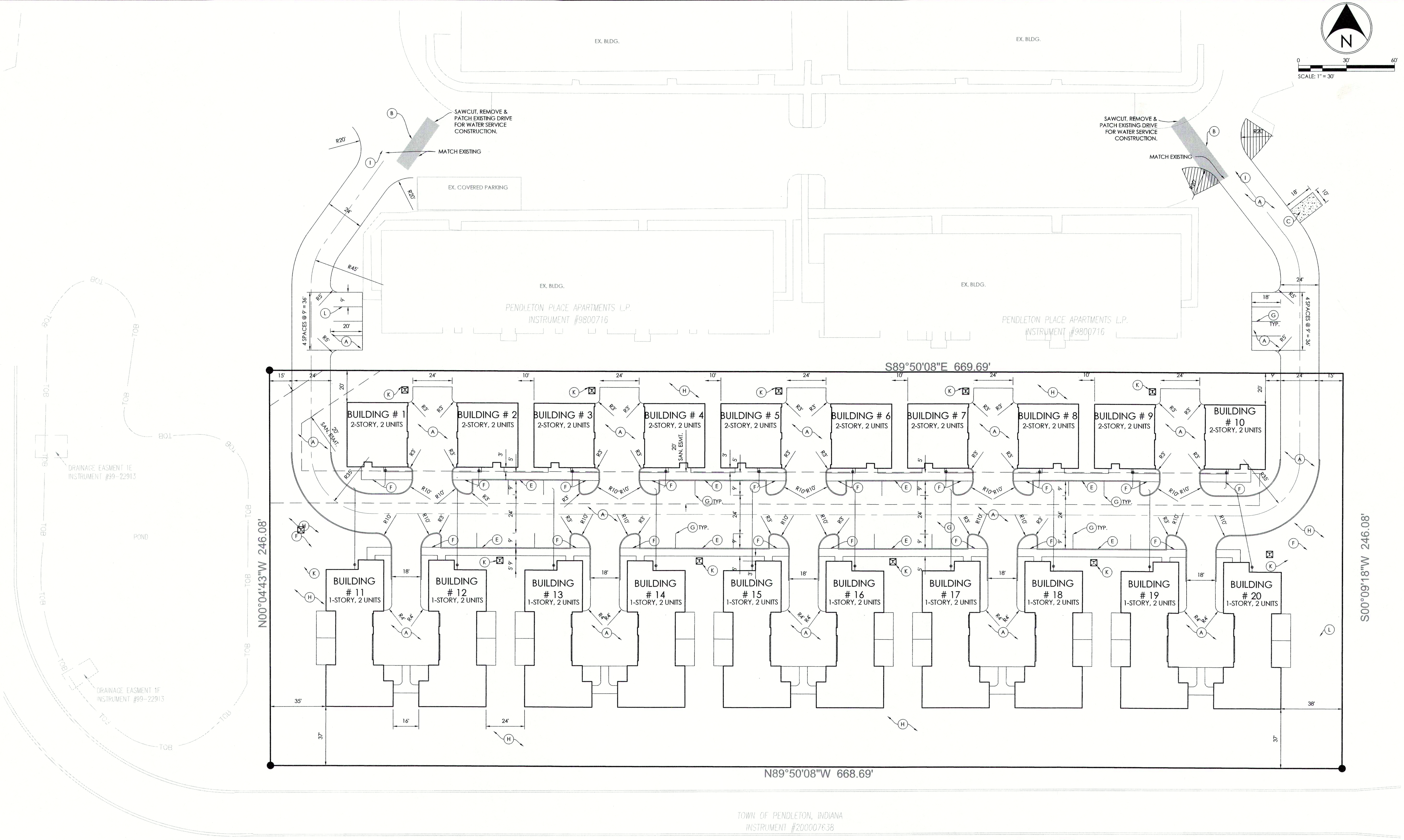
REVISIONS AND ISSUES | DATE | BY

CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E
R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

EXISTING CONDITIONS PLAN

PLAN DATE: 7/5/2016
DESIGN: AF | CHECK: JH | DRAWN: KG
PROJECT NO. 1601009
SHEET NO. C102



KEY NOTES:

- (A) LIGHT DUTY ASPHALT PAVEMENT
- (B) ASPHALT PAVEMENT PATCH
- (C) CONCRETE PAVEMENT/DUMPSTER
- (D) 6" STRAIGHT CURB
- (E) COMBINED CONCRETE CURB AND WALK
- (F) CONCRETE WALK
- (G) 4" WHITE PAVEMENT STRIPING, TYP.
- (H) GRASS / LANDSCAPE AREA (REF. LANDSCAPE PLANS)
- (I) MATCH EXISTING PAVEMENT
- (J) CURB RAMP
- (K) 4'X4' TRANSFORMER PAD, CONCRETE
- L

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TERRA SITE DEVELOPMENT
1307 W. 161st Street Westfield, IN 46074
P: 317.399.1216 F: 317.663.3049
www.TERRAsitedev.com

DATE	BY

REVISIONS AND ISSUES

CONSTRUCTION PLANS FOR:

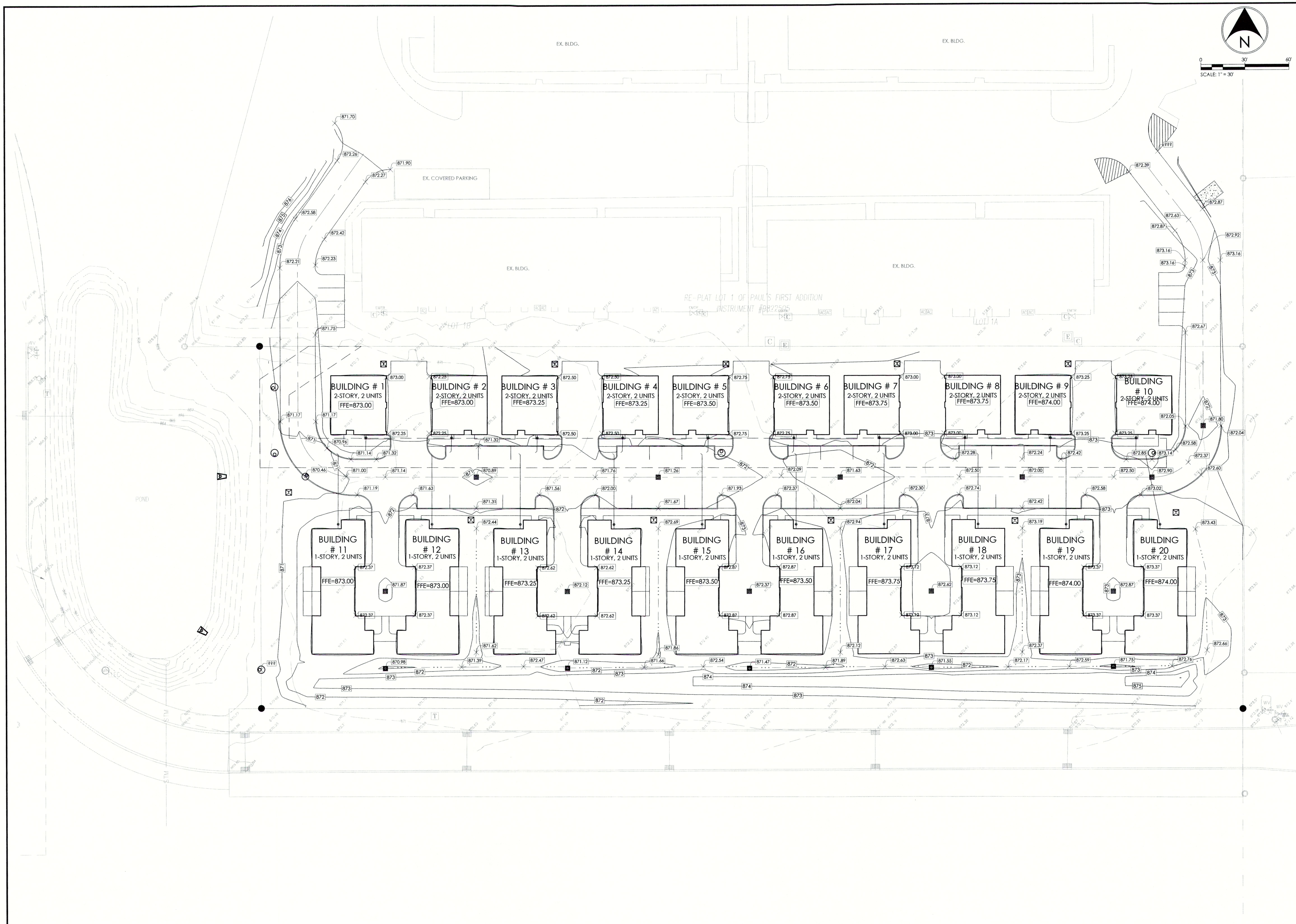
PENDLETON PLACE APTS., PHASE III

PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E

R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

SITE PLAN

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C201		



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NO.	DATE	BY
REVISIONS AND ISSUES		

CONSTRUCTION PLANS FOR:

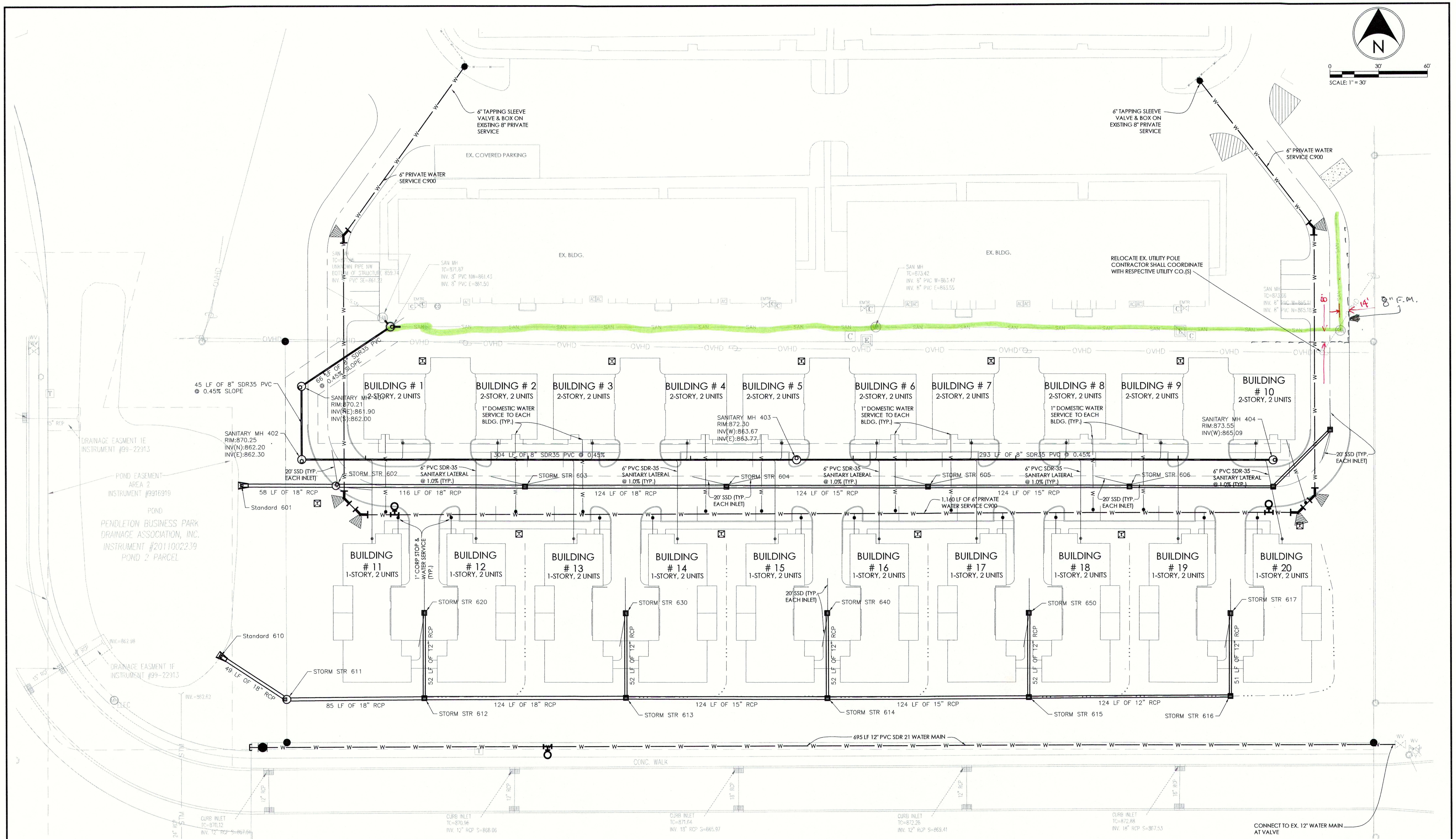
PENDLETON PLACE APTS., PHASE III

PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E

R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

GRADING PLAN

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C301		



STORM STRUCTURE DATA TABLE

STRUCTURE NO.	RIM	NEENAH CASTING DESIGNATION	STRUCTURE TYPE	NOTES
601	867.03	N/A	CONCRETE F.E.S.	Pipe End Section
602	870.46	R–3472	Standard	Manhole Type–C
603	870.89	R–3472	Standard	Inlet Type–A
604	871.26	R–3472	Standard	Inlet Type–A
605	871.63	R–3472	Standard	Inlet Type–A
606	872.00	R–3472	Standard	Inlet Type–A
607	872.90	R–3472	Standard	Inlet Type–A
608	871.80	R–3472	Standard	Inlet Type–A
610	866.64	N/A	CONCRETE F.E.S.	Pipe End Section
611	870.32	R–1772	Standard	Manhole Storm

STORM STRUCTURE DATA TABLE

STRUCTURE NO.	RIM	NEENAH CASTING DESIGNATION	STRUCTURE TYPE	NOTES
612	870.98	R–4342	Standard	Inlet Type–A
613	871.12	R–4342	Standard	Inlet Type–A
614	871.47	R–4342	Standard	Inlet Type–A
615	871.55	R–4342	Standard	Inlet Type–A
616	871.75	R–4342	Standard	Inlet Type–A
617	872.87	R–3472	Standard	Inlet Type–A
620	871.87	R–3472	Standard	Inlet Type–A
630	872.12	R–3472	Standard	Inlet Type–A
640	872.37	R–3472	Standard	Inlet Type–A
650	872.62	R–3472	Standard	Inlet Type–A

STORM PIPE DATA TABLE

UPSTREAM STRUCTURE NO.	DOWNSTREAM STRUCTURE NO.	L.F.	SIZE / TYPE	SLOPE %	UPSTREAM INV.	DOWNSTREAM INV.
602	601	58	18" RCP	0.50%	865.61	865.32
603	602	116	18" RCP	0.35%	866.02	865.61
604	603	124	18" RCP	0.30%	866.39	866.02
605	604	124	15" RCP	0.35%	867.02	866.59
606	605	124	15" RCP	0.30%	867.39	867.02
607	606	88	12" RCP	0.30%	867.85	867.59
608	607	50	12" RCP	0.30%	868.00	867.85
611	610	49	18" RCP	0.40%	865.13	864.93
612	611	85	18" RCP	0.40%	865.97	865.63
613	612	124	18" RCP	0.25%	866.28	865.97

STORM PIPE DATA TABLE

UPSTREAM STRUCTURE NO.	DOWNSTREAM STRUCTURE NO.	L.F.	SIZE / TYPE	SLOPE %	UPSTREAM INV.	DOWNSTREAM INV.
614	613	124	15" RCP	0.35%	866.91	866.48
615	614	124	15" RCP	0.30%	867.28	866.91
616	615	124	12" RCP	0.30%	867.85	867.48
617	616	51	12" RCP	0.30%	868.00	867.85
620	612	52	12" RCP	0.30%	867.90	867.74
630	613	52	12" RCP	0.30%	868.30	868.14
640	614	52	12" RCP	0.30%	868.90	868.74
650	615	52	12" RCP	0.30%	869.00	868.84

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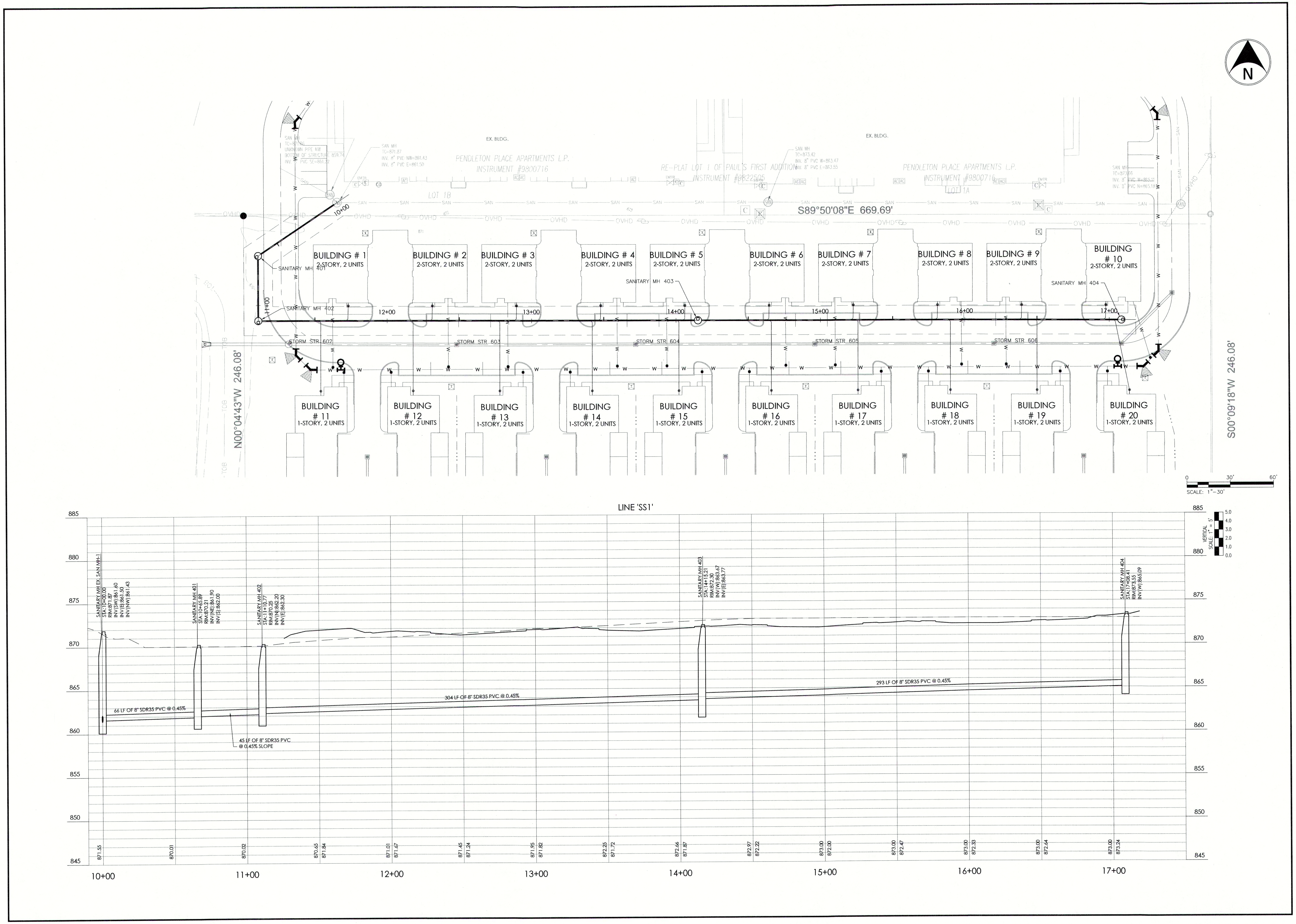
REVISIONS AND ISSUES

CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E
R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202
UTILITY PLAN

PLAN DATE: 7/5/2016
DESIGN: AF | CHECK: JF | DRAWN: KG
PROJECT NO. 1601009
SHEET NO. C401



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TERRA SITE DEVELOPMENT
1307 W. 161st Street Westfield, IN 46074
P: 317.399.1216 F: 317.663.3049
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REVISIONS AND ISSUES

DATE	BY

CONSTRUCTION PLANS FOR:

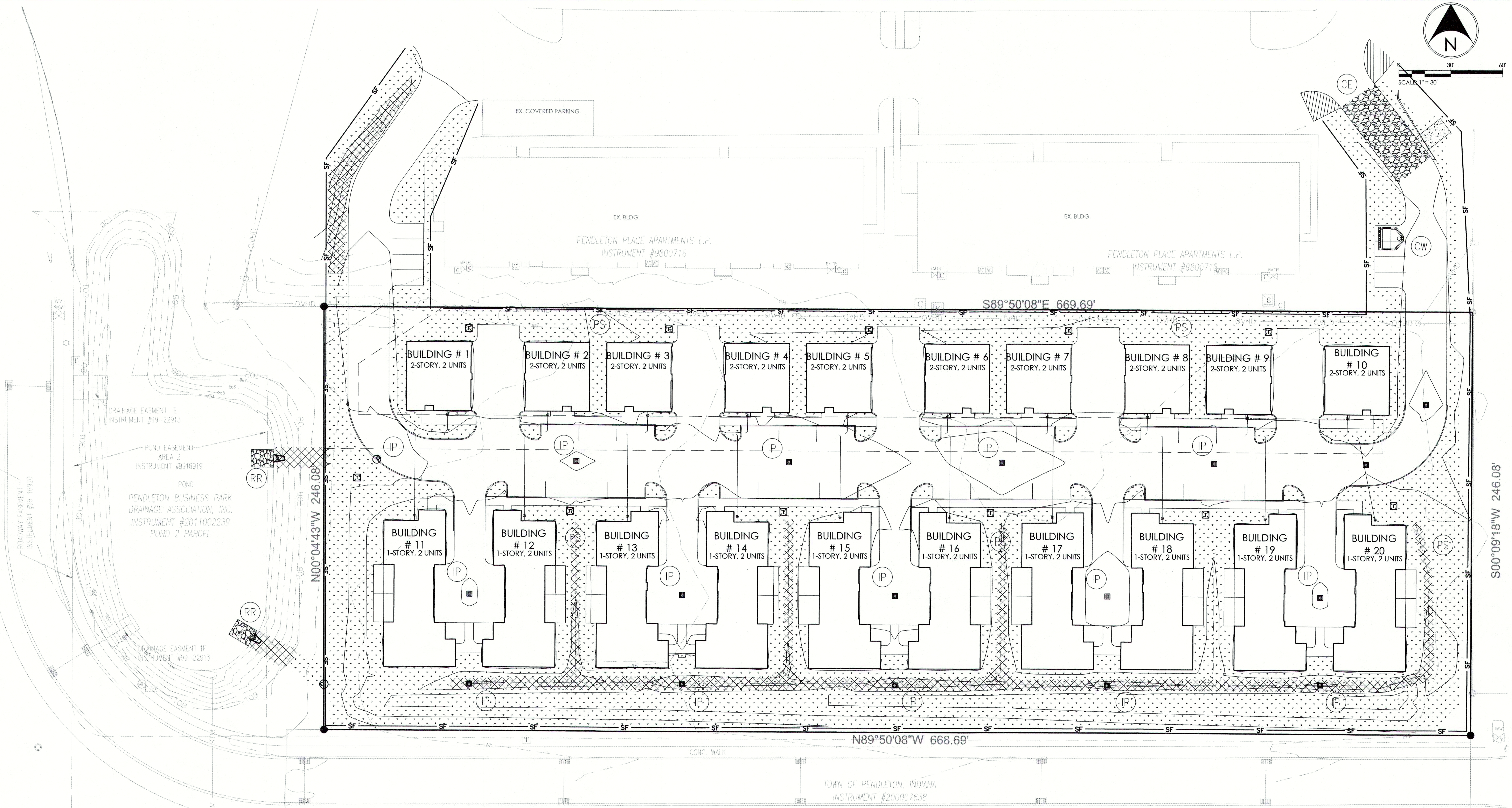
PENDLETON PLACE APTS., PHASE III

PENDLETON, FALL CREEK, MADISON IN 46064 S19, T18N, R7E

R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

SANITARY PLAN AND PROFILE

PLAN DATE:	7/5/2016	
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO.	1601009	
SHEET NO.	C402	



LEGEND

- (IP) - DANDY SACK INLET PROTECTION
- (CE) - CONSTRUCTION ENTRANCE
- (PS) - PERMANENT SEEDING WITH MULCH
  USE SOIL PROTECTION CHART
- (TS) - TEMPORARY
  USE SOIL PROTECTION CHART
- (EB) - EROSION CONTROL BLANKET WITH
  PERMANENT SEEDING
  N.A.G. S75 IN SWALE
  S150 ON LAKE SLOPES
- (RR) - RIP RAP OUTLET PROTECTION
- —SF— - SILT FENCE
- - - - - -CONSTRUCTION LIMITS
- (CW) - CONCRETE WASHOUT AREA

EROSION CONTROL NOTES:

DISTURBED AREA = 4 ACRES ±

1. Additional erosion control measures may be required by the field inspector.
2. There shall be no dirt, debris, or storage of materials in the street.
3. All erosion control materials shall be approved by the Town of Pendleton prior to installation.

THE CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION AND MAINTENANCE OF EROSION CONTROL AND STORM WATER POLLUTION PREVENTION FOR THE PROJECT AREA:

Name: -
Address: -
Phone: XXX-XXX-XXXX

List of Qualifications:
Contractor is to inform the Madison County Soil & Water Conservation District of who this stormwater pollution prevention individual is at the pre-construcion meeting, prior to any earth disturbing & construction activities.

THE INDIANA STORM WATER QUALITY MANUAL & TOWN OF PENDLETON AND MADISON COUNTY DESIGN & CONSTRUCTION SPECIFICATIONS MANUAL. SHALL BE USED IN CONJUNCTION WITH THIS SET OF EROSION CONTROL PLANS.

CIVIL ENGINEERS
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DEVELOPMENT CONSULTANTS
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CONSTRUCTION STAKING
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TERRA SITE DEVELOPMENT
1307 W. 161st Street Westfield, IN 46074
P: 317.399.1216 F: 317.663.3049
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REVISIONS AND ISSUES	DATE	BY

CONSTRUCTION PLANS FOR:

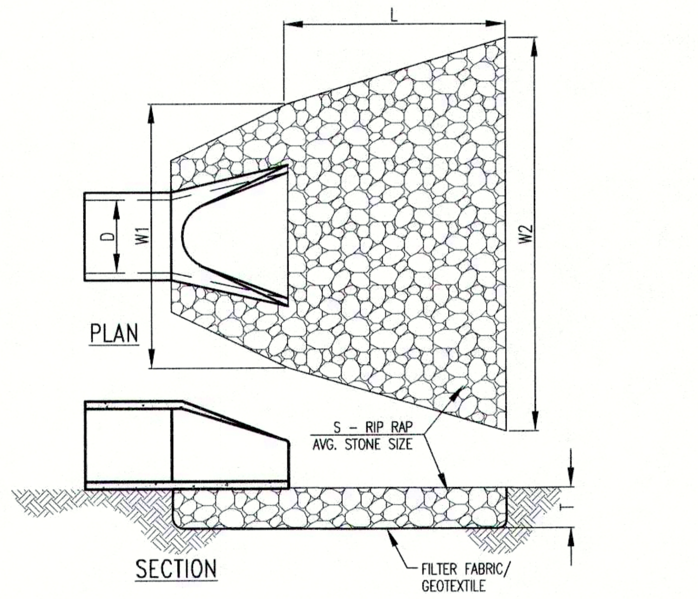
PENDLETON PLACE APTS., PHASE III

PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E

R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

EROSION CONTROL PLAN

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C501		



RIP-RAP DIMENSIONS

APRON	D	L	W1	W2	T	TYPE
PIPE/STR ID	(IN)	(FT)	(FT)	(FT)	(IN)	(IN)
601	24	15	6	20	18	REVETMENT
610	24	15	6	20	18	REVETMENT

MAINTENANCE:
1. INSPECT RIP-RAP APRON AFTER EACH STORM EVENT FOR STONE DISPLACEMENT AND EROSION AT SIDES AND ENDS OF THE APRON.
2. REMOVE AND STABILIZE EXCESS SEDIMENT EVIDENT ON APRON.
3. MAKE REPAIRS TO THE APRON IMMEDIATELY. USE APPROPRIATE STONE SIZE AND DO NOT PLACE ABOVE FINISHED GRADE.
4. RIP-RAP AND GEOTEXTILES SHALL MEET INDOT SPECIFICATIONS.

RIP-RAP STORM OUTLET PROTECTION

NOT TO SCALE

Seedbed Preparation

Apply lime to raise the pH to the level needed for species being seeded. Apply 23 pounds of 12-0-12 analysis fertilizer (or equivalent) per 1000 sq. ft. (approximately 1000 pounds per acre) or fertilize according to test. Application of 150 lbs. of ammonium nitrate on areas low in organic matter and fertility will greatly enhance vegetative growth.

Work the fertilizer and lime into the soil to a depth of 2-3 inches with a harrow, disk or rake operated across the slope as much as possible.

Seeding

Select a seed mixture based on projected use of the area (Figure 5-2), while considering best seeding dates. See Figure 5-3 this sheet. If tolerances are a problem, such as salt tolerance of seedings adjacent to streets and highways, see Figure 5-4 this sheet before final selection.

Mulch Rate

Mulch is to be applied at 2,000 to 3,000 pounds per acre in areas not covered by erosion control blanketing. Mulch must be anchored using a mulch anchoring tool or farm disk with dull, serrated, straight set blades, or bulldozer cleats driven up and down slope.

Figure 5-2: Permanent Seed Mixtures

Species	Seeding Rate lbs/acre	lbs/1000 sq. ft.	Suitable pH	Site Suitability* Droughty	well Drained	Wet
Level and Sloping, Open Areas						
1. Tall Fescue	35	.8	5.5-8.3	2	1	2
2. Tall Fescue	25	.6	5.5-8.3		1	
Red Clover**	5	.12				
3. Kentucky Bluegrass	15	.4	5.5-7.5	2	1	
Creeping Red Fescue	15	.4				
Steep Banks and Cuts						
4. Tall Fescue	15	.4	5.8-7.5	2	1	2
Kentucky Bluegrass	25	.6				
5. Tall Fescue	35	.8	5.5-8.3	2	1	
Emerald Crownvetch**	10	.25				
Lawns and High Maintenance Areas						
6. Kentucky Bluegrass	40	.9	5.8-7.5	2	1	
Creeping Red Fescue	40	.9				
7. Perennial Ryegrass (Turf Type)	170	4.0	5.0-7.5		1	
8. Tall Fescue	170	4.0	5.5-8.3	2	1	2

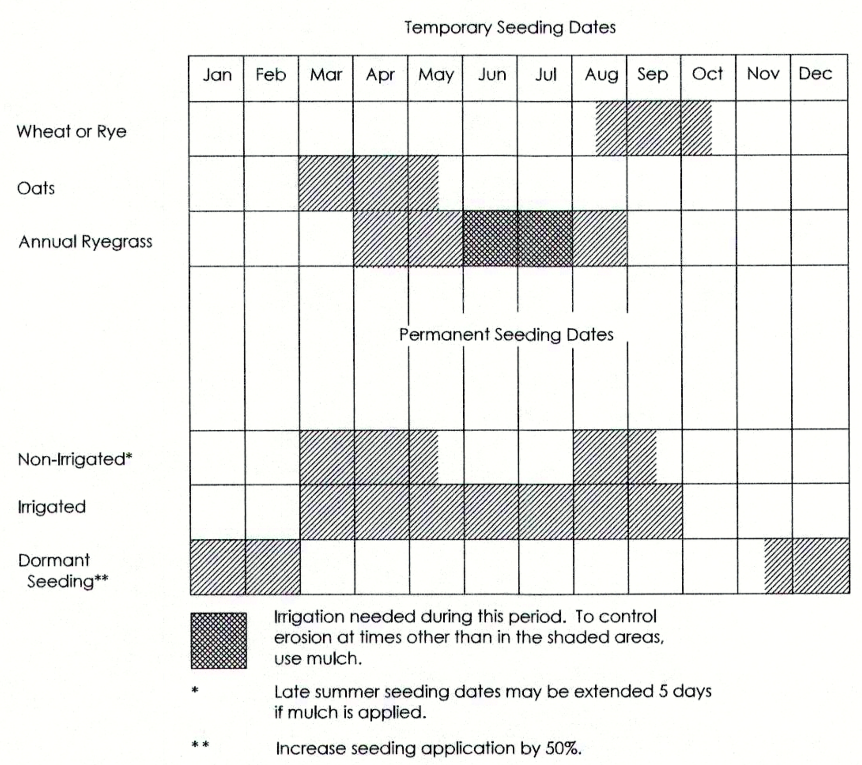
* 1 - Preferred 2 - Will Tolerate ** Inoculate with specific Inoculant.

	SOIL CONDITION Wet	Norm	Dry	Shade Tolerance	Close Mowing to 2-3 1/2inches	Tromping Tolerance	Fertility Needs	Winter Hardiness	Flooding Tolerance (days)	Mature Height (inches)	Emergence Time (days)	Salt Tolerance Gen.	Soil	Spray
Creeping Red Fescue Festuca rubra	2	1 2	1 1	1			Med.	1	20-25	12-18	7-21			S
Kentucky Bluegrass Poa pratinsis	2	1 2	1 1	1			Med.	1	25-35	12-18	10-20			MT
Tall Fescue Festuca L arundinacea	2	1 1	1 1	1			Low	1	24-35	24-36	5-14		T	
Perennial ryegrass Lolium perenne	2	1 2	- 1	2			Med-High	2	15-20	12-18	5-10		MT	
Crownvetch Coronilla varia	- 1	1 2	- -				Low	1	5-10	24	14-21	T		
Red Clover Trifolium pratense	- 1	- 2	- -				Med.	1	7-10	18	5-10	S	S	

Ranking:
1 Good
2 Medium
- Not tolerant

Salt Tolerance (to both soil salts & spray):
T Tolerance
MT Medium Tolerance
S Slight Tolerance

FIGURE 5-4



Irrigation needed during this period. To control erosion at times other than in the shaded areas, use mulch.

* Late summer seeding dates may be extended 5 days if mulch is applied.

** Increase seeding application by 50%.

FIGURE 5-3

Temporary Seedings

Kind of Seed	1000 Sq. Ft.	Acre	Remarks
Wheat or Rye	3.5 lbs.	2 bu.	Cover seed 1" to 1 1/2" deep
Spring Oats	2.3 lbs.	3 bu.	Cover seed 1" deep
Annual ryegrass	1 lb.	40 lbs.	Cover seed 1/4"deep*

* Not necessary where mulch is applied.

SEEDING SCHEDULE

NOT TO SCALE

EROSION CONTROL SEQUENCE

1. The following erosion control measures shall be in place prior to any land disturbing activities:
   - 1.1. Create a stabilized construction entrance
   - 1.2. Install Temporary Inlet Protection Measures on existing storm inlets.
   - 1.3. Install Temporary Silt Fence and/or Silt Sock Protection as shown on approved plans
   - 1.4. Install Temporary Concrete Washout
2. Once land disturbing activities begin, the following practices shall be provided:
   - 2.1. Once earth disturbing activities begin, the adjacent roadways, Mann Road and adjacent drives and parking lots shall be continuously monitored for sediment tracking. If sediment is found, immediate action is required to clean the offsite areas and the current erosion control practices will need to be inspected and modified accordingly to prevent any further sediment from leaving the project site.
   - 2.2. Once the new storm structures/pipes are is in place, the appropriate type of inlet protection measures shall be placed.
   - 2.3. Continued monitoring of all exposed areas shall be performed in order to verify the surrounding areas are not becoming sediment laden from construction activities onsite.
   - 2.4. As the construction occurs, disturbed areas shall be stabilized as soon as they are at finished grade or will be left bare for more than 15 days.
   - 2.5. Provide final grade stabilization upon final grading of all areas including erosion control blanketing, seeding and sodding as appropriate.
   - 12.6. Storm sewers that become silted due to construction activities shall be cleaned with a jet vacuum and the material properly disposed of.

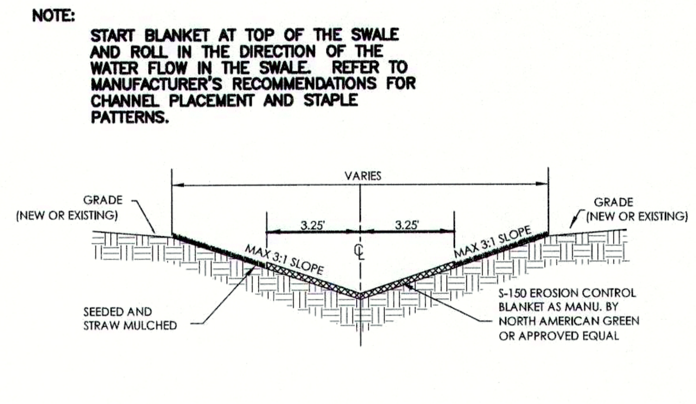
EROSION CONTROL NOTES:

1. All proposed erosion and sediment control shall be in conformance with the Hamilton County Stormwater Specifications Manual, latest edition. Discrepancies between the plans and the Manual shall not alleviate the contractor from adhering to the requirements as set forth in the Manual.
2. Additional erosion and sediment control measures may be required by the inspector.

EROSION CONTROL SCHEDULE

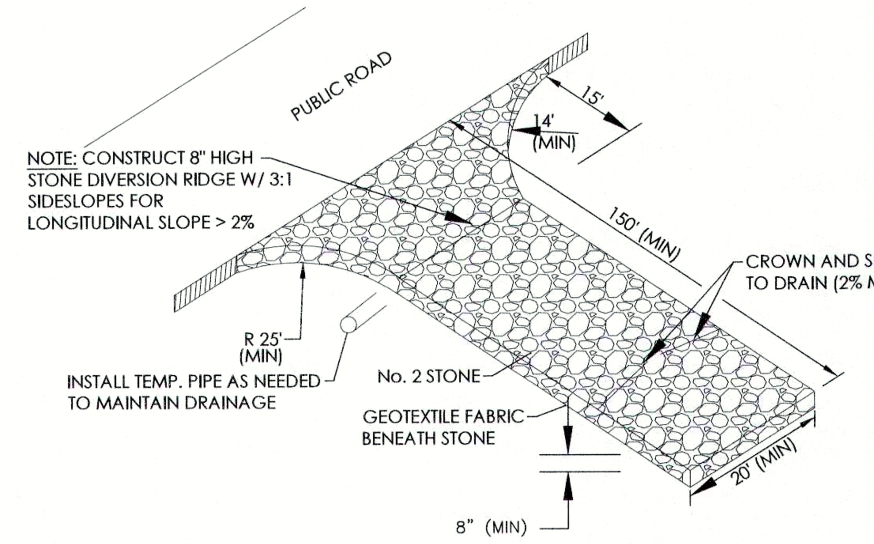
EROSION CONTROL MEASURE	* MAINTENANCE	INSTALLATION SEQUENCE
STONE ENTRANCE	AS NEEDED	PRIOR TO CLEARING AND GRADING
SILT FENCE	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	PRIOR TO CLEARING AND GRADING
EXISTING INLET PROTECTION	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	PRIOR TO CLEARING AND GRADING
TREE PROTECTION	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	PRIOR TO CLEARING AND GRADING
TEMPORARY DIVERSIONS	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	ALONG WITH ROUGH GRADING
TEMPORARY SEEDING	WATER AS NEEDED	AFTER ROUGH GRADING
PERMANENT SEEDING	WATER AS NEEDED	AFTER FINISH GRADING
EROSION CONTROL MATTING	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	AFTER FINISH GRADING
~~STRAW BALES~~	~~WEEKLY, AFTER STORM EVENTS AND AS NEEDED~~	~~AFTER FINISH GRADING~~
INLET PROTECTION	WEEKLY, AFTER STORM EVENTS AND AS NEEDED	AFTER EACH INLET IS PLACED
SEED, SOD & LANDSCAPE AROUND UNITS FINISHED	WATER AS NEEDED	AFTER FINISHED GRADING AROUND FINISHED UNITS
~~REMOVAL OF STRAW BALES~~	~~N/A~~	~~AFTER ALL AREAS DRAINING TO THESE AREAS ARE STABILIZED~~
REMOVAL OF INLET PROTECTION	N/A	AFTER ALL AREAS DRAINING TO THESE AREAS ARE STABILIZED
REMOVAL OF SILT FENCE	N/A	AFTER ALL AREAS DRAINING TO THESE AREAS ARE STABILIZED

* - SEE CHART FOR MAINTENANCE REQUIREMENTS



TYPICAL DRAINAGE SWALE WITH EROSION CONTROL MATTING

NOT TO SCALE



NOTES

Installation:
Avoid locating on steep slopes or at curves in public roads.

Remove all vegetation and other objectionable material from the foundation area, and grade and crown for positive drainage.

If longitudinal slope is in excess of 2% construct a water bar (ridge) about 15 feet from the entrance to divert runoff away from the road (See detail above).

Install pipe under the pad (if needed) to maintain proper public road drainage.

If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.

Place stone to dimensions and grade show on the erosion control plan, leaving the surface smooth and sloped for drainage.

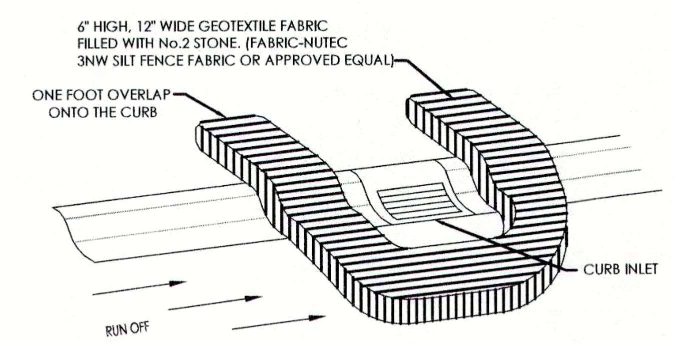
Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

MAINTENANCE

1. Inspect entrance pad and sediment disposal area weekly, after storm events, and/or heavy use.
2. Reshape pad as needed for drainage and runoff control.
3. Topdress with clean stone as needed.
4. Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flush only if water is conveyed to a sediment trap or basin.
5. Repair any broken road pavement immediately.

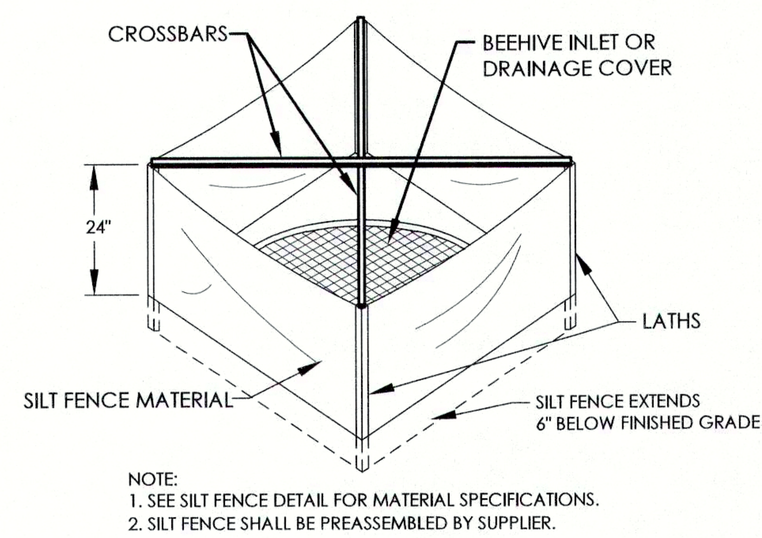
TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE



CURB INLET SEDIMENT BARRIER

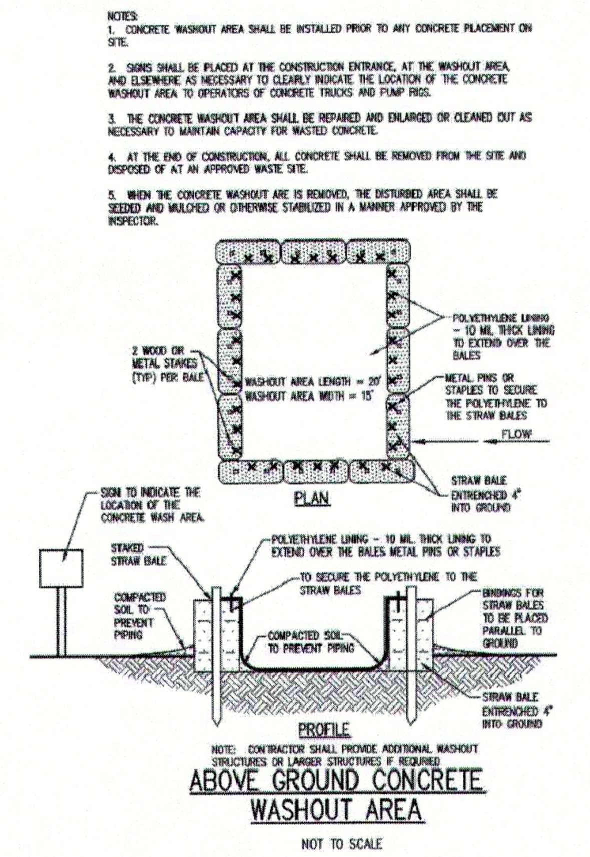
NOT TO SCALE



NOTE:
1. SEE SILT FENCE DETAIL FOR MATERIAL SPECIFICATIONS.
2. SILT FENCE SHALL BE PREASSEMBLED BY SUPPLIER.

INLET PROTECTION-SILT FENCE

NOT TO SCALE

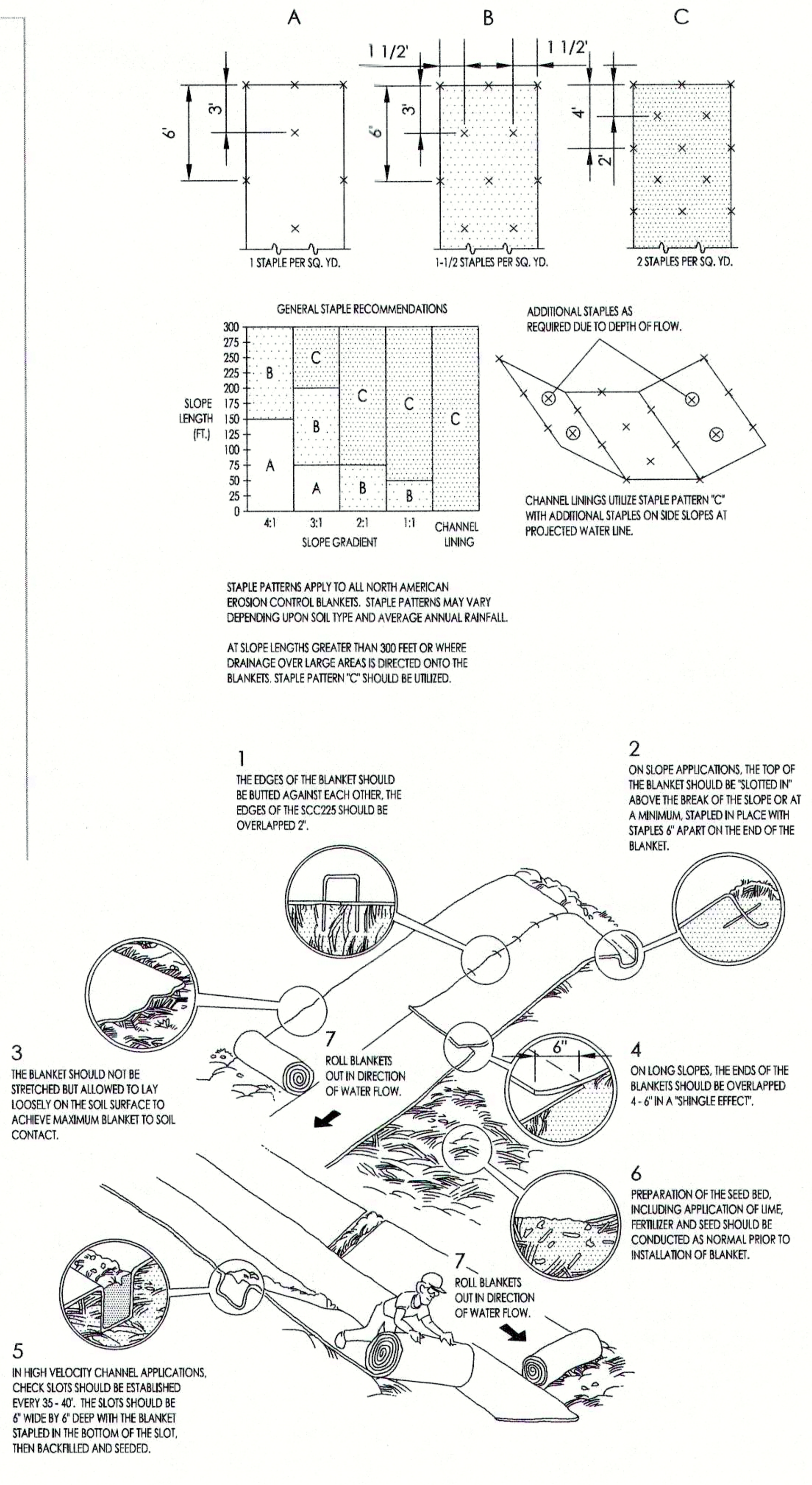


ABOVE GROUND CONCRETE WASHOUT AREA

NOT TO SCALE

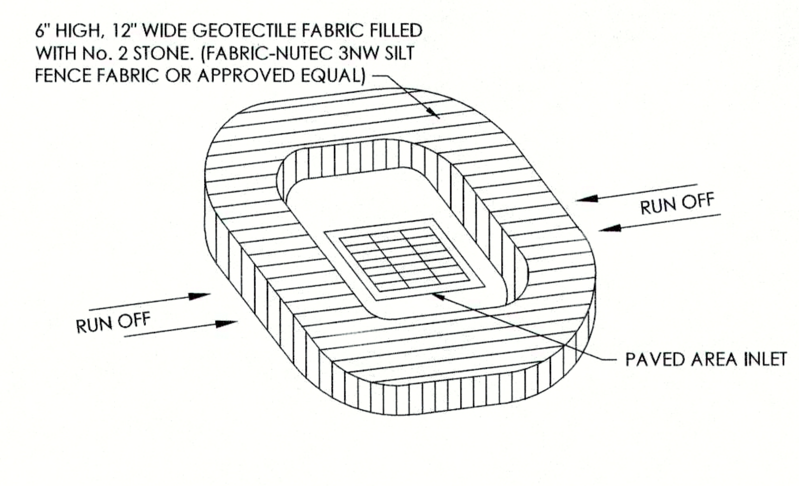
CONCRETE WASHOUT AREA

NOT TO SCALE



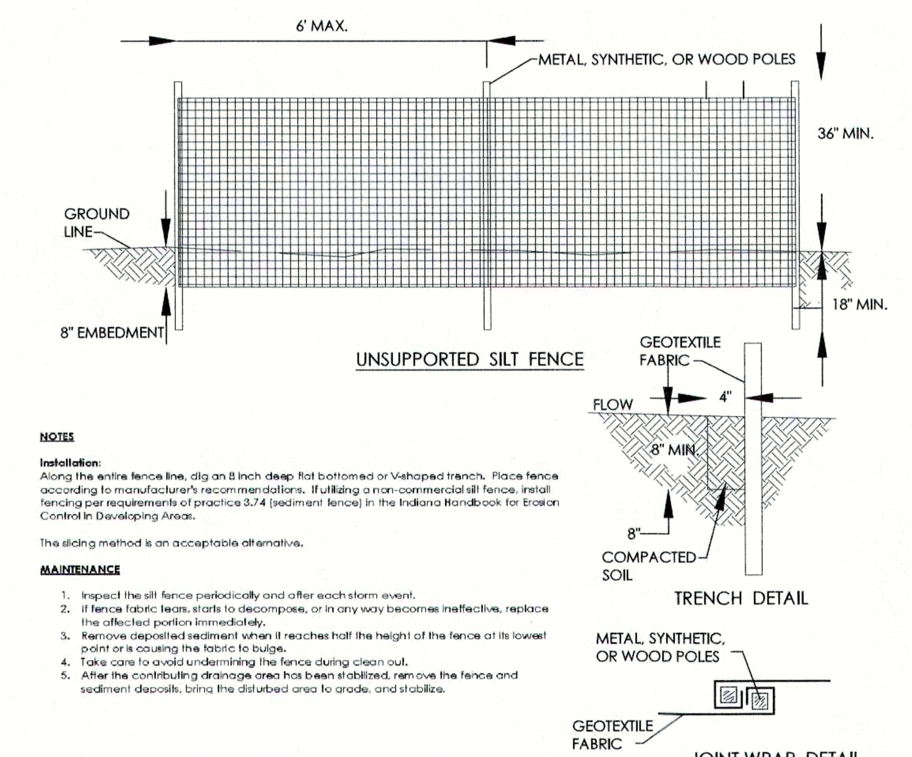
EROSION BLANKET INSTALLATION

NOT TO SCALE



PAVED INLET SEDIMENT BARRIER

NOT TO SCALE



SILT FENCE (SEDIMENT FENCE)

NOT TO SCALE

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REVISIONS AND ISSUES	DATE	BY

CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E
R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

EROSION CONTROL AND SWPP DETAILS

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C502		

SECTION A - CONSTRUCTION PLAN ELEMENTS

A1 PLAN INDEX - SEE BELOW
A2 11"X17" PLAT - ATTACHED
A3 PROJECT NARRATIVE - THIS IS A PROPOSED 200,000 SF WAREHOUSE W/ PARKING AND ACCESS DRIVE ON APPROXIMATELY 26.2 ACRES.
A4 VICINITY MAP - SEE SHEET C100
A5 LEGAL DESCRIPTION - PART OF SW ¼ OF SECTION 23 - TOWNSHIP 18 NORTH - RANGE 5 EAST, BUCK CREEK TOWNSHIP, HANCOCK COUNTY, INDIANA.
LAT: 39°48'49"N
LONG: 85°56'32"W
A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS - SEE SITE PLAN SHEET C201-C2021
A7 HYDROLOGIC UNIT CODE (14 DIGIT) - 05120204070020
A8 NOTATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS - 401 WATER QUALITY CERTIFICATION (IDEM): NONE
SECTION 404 PERMIT (USACE): NONE
CONSTRUCTION IN A FLOODWAY (INDNR): NONE
A9 SPECIFIC POINTS WHERE STORMWATER DISCHARGE LEAVES SITE - SITE DRAINS INTO PROPOSED STORM SEWER PIPE NETWORK AND DISCHARGES TO EXISTING DETENTION POND ALONG C.R. 200 N. SEE GRADING AND UTILITY PLAN SHEETS C301-C401 FOR MORE INFORMATION
A10 LOCATION AND NAME OF WETLANDS, LAKES AND WATER COURSES ON AND ADJACENT TO SITE - SEE SITE DEVELOPMENT PLAN SHEET C101 FOR MORE INFORMATION
A11 IDENTIFICATION OF ALL RECEIVING WATERS -BUCK CREEK
A12 IDENTIFICATION OF POTENTIAL DISCHARGE TO GROUND WATER - NONE KNOWN
A13 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES - NONE
A14 PRE-CONSTRUCTION AND POST-CONSTRUCTION ESTIMATE OF PEAK DISCHARGE
10 YEAR PRE-CONSTRUCTION PEAK RATE = X CFS ALLOWABLE 10 YEAR X CFS
100 YEAR POST-CONSTRUCTION PEAK RATE =X CFS ALLOWABLE 100 YEAR X CFS
A15 ADJACENT LAND USES:
NORTH: COMMERCIAL
SOUTH: AGRICULTURAL
EAST: COMMERCIAL
WEST: AGRICULTURAL
A16 CONSTRUCTION LIMITS - STORMWATER POLLUTION PREVENTION PLAN, SHEET C501,502
A17 IDENTIFICATION OF EXISTING VEGETATIVE COVER - SEE ALTA SURVEY
A18 SOILS MAP W/ SOIL DESCRIPTIONS AND LIMITATIONS - SEE COVER SHEET C100
A19 LOCATIONS, SIZE & DIMENSIONS OF PROPOSED STORMWATER SYSTEMS - SEE GRADING AND UTILITY PLAN SHEETS C301-C401
A20 PLANS FOR OFF-SITE CONSTRUCTION ACTIVITIES - NONE
A21 LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/DISPOSAL AREAS - SEE PRE-CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN SHEET C501
A22 EXISTING SITE TOPOGRAPHY - SEE TOPOGRAPHIC SURVEY SHEETS S101
A23 PROPOSED FINAL TOPOGRAPHY - SEE SITE DEVELOPMENT PLANS SHEETS C301
A24 INDIVIDUAL IN CHARGE OF SWPPP IMPLEMENTATION - SEE PLAN NOTE 13 ON SHEET C501

SECTION B - SWPP - CONSTRUCTION PHASE

B1 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES - POTENTIAL POLLUTANTS FROM CONSTRUCTION ACTIVITY SUCH AS OIL, GREASE, ANTIFREEZE, GASOLINE AND DIESEL FUEL FROM CONSTRUCTION EQUIPMENT; SOIL EROSION; FERTILIZER AND PESTICIDES FROM LANDSCAPING.
B2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION RELATIVE TO LAND DISTURBING ACTIVITIES:
1. SEE SHEET C503 FOR CONSTRUCTION SEQUENCING.
B3 CONSTRUCTION ENTRANCE - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C502 FOR LOCATION AND SHEET C503 FOR CONSTRUCTION ENTRANCE DETAILS AND SPECIFICATIONS.
B4 SEDIMENT CONTROL PLAN FOR SHEET FLOW AREAS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C501-502.
B5 SEDIMENT CONTROL PLAN FOR CONCENTRATED FLOW AREAS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C501-C502.
B6 STORM SEWER INLET PROTECTION MEASURE LOCATIONS AND SPECS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C501-C5021 FOR LOCATIONS AND SHEET C503 FOR CONSTRUCTION DETAILS AND SPECIFICATIONS.
B7 RUNOFF CONTROL MEASURES - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C501-502 FOR LOCATIONS AND SHEETS C503 FOR CONSTRUCTION DETAILS AND SPECIFICATIONS.
B8 STORM WATER OUTLET PROTECTION SPECS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C501-502 FOR LOCATIONS AND SHEET C503 FOR CONSTRUCTION DETAILS AND SPECIFICATIONS.
B9 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEETS C501-502 FOR LOCATIONS AND SHEETS C503-C504 FOR CONSTRUCTION DETAILS AND SPECIFICATIONS.
B10 STORMWATER QUALITY CONSTRUCTION DETAILS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEETS C503 FOR DETAILS AND C504 FOR SPECIFICATIONS.
B11 TEMPORARY SURFACE STABILIZATION METHOD FOR EACH SEASON - SEE SEASONAL SOIL PROTECTION CHART SHEET C503
B12 PERMANENT SURFACE STABILIZATIONS - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C501-C502 FOR LOCATIONS AND SHEETS C503 FOR CONSTRUCTION DETAILS AND SPECIFICATIONS.
B13 MATERIAL HANDLING AND SPILL PREVENTION PLAN:

PURPOSE:

THE INTENTION OF THIS SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) IS TO ESTABLISH THE PROCEDURES AND EQUIPMENT REQUIRED TO PREVENT THE DISCHARGE OF OIL AND HAZARDOUS SUBSTANCES IN QUANTITIES THAT VIOLATE APPLICABLE WATER QUALITY STANDARDS, CAUSE A SHEEN UPON OR DISCOLORATION OF THE SURFACE OF NAVIGABLE WATERS OR ADJOINING SHORELINES, OR CAUSE SLUDGE OR EMULSION TO BE DEPOSITED BENEATH THE SURFACE OF THE WATER OR ADJOINING SHORELINES. THE PLAN ALSO ESTABLISHES THE ACTIVITIES REQUIRED TO MITIGATE SUCH DISCHARGES (I.E., COUNTERMEASURES) SHOULD THEY OCCUR.

DEFINITIONS:

POLLUTANT: MEANS POLLUTANT OF ANY KIND OR IN ANY FORM, INCLUDING BUT NOT LIMITED TO SEDIMENT, PAINT, CLEANING AGENTS, CONCRETE WASHOUT, PESTICIDES, NUTRIENTS, TRASH, HYDRAULIC FLUIDS, FUEL, OIL, PETROLEUM, FUEL OIL, SLUDGE, OIL REFUSE, AND OIL MIXED WITH WASTES OTHER THAN DREDGED SOIL.

DISCHARGE:

INCLUDES BUT IS NOT LIMITED TO, ANY SPILLING, LEAKING, PUMPING, POURING, EMITTING, EMPTYING, OR DUMPING.

NAVIGABLE WATERS:

MEANS ALL WATERS OF THE UNITES STATES THAT ARE CONNECTED WITH A NAVIGABLE STREAM, LAKE, OR SEA. [NOTE: THIS DEFINITION IS USUALLY INTERPRETED TO MEAN ANY WASTEWATER(EVEN NORMALLY DRY WASH OR STORM SEWER) THAT EVENTUALLY DRAINS INTO A NAVIGABLE STREAM].

PLAN REVIEW AND AMENDMENTS:

THIS PLAN SHALL BE REVIEWED AND/OR AMENDED, IF NECESSARY, WHENEVER THERE IS A CHANGE IN THE DESIGN OF THE SITE, CONSTRUCTION, OPERATION, OR MAINTENANCE WHICH MATERIALLY AFFECTS THE SITES' POTENTIAL FOR THE DISCHARGE OF REGULATED MATERIAL.

PREDICTION OF POTENTIAL SPILLS:

1. NEAREST NAVIGABLE WATER: LITTLE EAGLE CREEK
2. POSSIBLE SPILL SOURCES (DURING AND POST CONSTRUCTION): VEHICULAR SOURCES SUCH AS LEAKING FUEL OR OIL, BRAKE FLUID, GREASE, ANTIFREEZE; CONSTRUCTION TRASH AND DEBRIS, BIOLOGICAL AGENTS FOUND IN TRASH AND DEBRIS, FERTILIZERS, HOUSEHOLD ITEMS INCLUDING BUT NOT LIMITED TO CLEANING AGENTS, CHEMICALS, PAINT, HERBICIDES AND PESTICIDES.
3. GROUNDWATER CONTAMINATION: THIS FACILITY MAINTAINS NO ABOVE GROUND OR UNDER GROUND STORAGE TANKS. THEREFORE, IT IS FELT THAT THERE IS LITTLE OR NO POSSIBILITY OF POST CONSTRUCTION GROUNDWATER CONTAMINATION.

ALERT PROCEDURES FOR SPILLS:

1. ANY PERSONNEL OBSERVING A SPILL WILL IMMEDIATELY INSTIGATE THE FOLLOWING PROCEDURE:
a.) DIALING "0" FROM ANY TELEPHONE.
b.) NOTIFY THE APPROPRIATE EMERGENCY PERSONNEL.
2. THE EMERGENCY COORDINATOR WILL THEN TAKE THE FOLLOWING ACTIONS:
a.) BARRICADE THE AREA ALLOWING NO VEHICLES TO ENTER OR LEAVE THE SPILL ZONE.
b.) NOTIFY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, OFFICE OF EMERGENCY RESPONSE BY CALLING THE APPROPRIATE TELEPHONE NUMBER:
OFFICE: 317-233-7745
TOLL FREE: 800-233-7745
ALSO THE NATIONAL RESPONSE CENTER AT 800-424-8802 AND PROVIDE THE FOLLOWING INSTRUCTIONS:
- TIME OF OBSERVATION OF THE SPILL
- LOCATION OF THE SPILL
- IDENTITY OF MATERIAL SPILLED
- PROBABLE SOURCE OF THE SPILL
- PROBABLE TIME OF THE SPILL
- VOLUME OF THE SPILL AND DURATION
- PRESENT AND ANTICIPATED MOVEMENT OF THE SPILL
- WEATHER CONDITIONS
- PERSONNEL AT THE SCENE
- ACTION INITIATED BY PERSONNEL
c.) NOTIFY THE ZIONSVILLE FIRE DEPARTMENT PHONE: 9-1-1
d.) NOTIFY THE BOONE COUNTY SURVEYORS OFFICE 317-483-4444
e.) NOTIFY THE MS4 DEPARTMENT OF CODE ENFORCEMENT AT 317-327-8700
f.) NOTIFY THE ZIONSVILLE POLICE DEPARTMENT PHONE: 9-1-1
g.) NOTIFY WASTE RECOVERY CONTRACTOR, MAINTENANCE PERSONNEL OR OTHER CONTRACTUAL PERSONNEL AS NECESSARY FOR CLEANUP.
h.) COORDINATE AND MONITOR CLEANUP UNTIL THE SITUATION HAS BEEN STABILIZED AND ALL SPILLS HAVE BEEN ELIMINATED.
i.) COOPERATE WITH THE IDEM-OER OR PROCEDURES AND REPORTS INVOLVED WITH THE EVENT.

CLEANUP PARAMETERS:

1. THE OWNER SHALL BE CONTINUALLY KEPT INFORMED, MAINTAIN LISTS OF QUALIFIED CONTRACTORS AND AVAILABLE VAC-TRUCKS, TANK PUMPERS AND OTHER EQUIPMENT READILY ACCESSIBLE FOR CLEAN UP OPERATIONS. IN ADDITION, A CONTINUALLY UPDATED LIST OF AVAILABLE ABSORBENT MATERIALS AND CLEAN-UP SUPPLIES SHOULD BE KEPT ON SITE.
2. ALL MAINTENANCE PERSONNEL WILL BE MADE AWARE OF TECHNIQUES FOR PREVENTION OF SPILLS. THEY WILL BE INFORMED OF THE REQUIREMENTS AND PROCEDURES OUTLINED IN THIS PLAN. THEY WILL BE KEPT ABREAST OF CURRENT DEVELOPMENTS OR NEW INFORMATION ON THE PREVENTION OF SPILLS AND / OR NECESSARY ALTERATIONS TO THIS PLAN.
3. WHEN SPILLS OCCUR WHICH COULD ENDANGER HUMAN LIFE AND THIS BECOMES PRIMARY CONCERN, THE DISCHARGE OF THE LIFE SAVING PROTECTION FUNCTION WILL BE CARRIED OUT BY THE LOCAL POLICE AND FIRE DEPARTMENTS.
4. ABSORBENT MATERIALS, WHICH ARE USED IN CLEANING UP SPILLED MATERIALS, WILL BE DISPOSED OF IN A MANNER SUBJECT TO THE APPROVAL OF THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
5. FLUSHING OF SPILLED MATERIAL WITH WATER WILL NOT BE PERMITTED UNLESS SO AUTHORIZED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.

B14 MONITORING AND MAINTENANCE GUIDELINES FOR POLLUTION PREVENTION MEASURES:

SILT FENCE MAINTENANCE REQUIREMENTS
1. INSPECT THE SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT.
2. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT IT'S LOWEST POINT OR IS CAUSING THE FABRIC TO BULGE.
4. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
5. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE AND STABILIZE IT.

TEMPORARY GRAVEL CONSTRUCTION MAINTENANCE REQUIREMENTS
1. INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
2. RESHAPE AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO STREETS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
5. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

TEMPORARY BEEHIVE INLET SEDIMENT TRAP MAINTENANCE REQUIREMENTS
1. INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH STORM EVENT AND IMMEDIATELY REPAIR ANY EROSION AND PIPING HOLES.
2. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6" OF CASTING
3. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND SEDIMENT, SMOOTH THE SITE TO BLEND WITH ADJOINING AREAS AND STABILIZE IT.

CURB INLET PROTECTION MAINTENANCE REQUIREMENTS
1. AFTER EACH STORM EVENT REMOVE THE SEDIMENT AND REPLACE THE GRAVEL, REPLACE THE GEOTEXTILE FABRIC IF USED.
2. PERIODICALLY REMOVE SEDIMENT AND TRACKED-ON SOIL FROM THE STREET, WITHOUT FLUSHING, TO REDUCE THE THE SEDIMENT LOAD ON THE INLET PROTECTION.
3. INSPECT CASTING COVER PERIODICALLY FOR DAMAGE AND REPAIR. KEEP GRATES FREE OF DEBRIS.
4. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE SEDIMENT DEPOSITS AND DISPOSE OF THEM PROPERLY.

EROSION CONTROL BLANKET MAINTENANCE REQUIREMENTS
1. DURING VEGETATIVE ESTABLISHMENT, INSPECT AFTER EACH STORM EVENT FOR ANY EROSION BELOW THE BLANKET.
2. IF ANY AREA(S) SHOW EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING IT, RE-SEED THE AREA AND RELAY AND STAPLE THE BLANKET.
3. AFTER VEGETATIVE ESTABLISHMENT CHECK THE TREATED AREA PERIODICALLY.

B15 EROSION & SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS - SEE SHEET C103 FOR DETAILS AND SPECIFICATIONS

SECTION C - STORMWATER POLLUTION PREVENTION PLAN - POST-CONSTRUCTION PHASE

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE: SILT AND SEDIMENT FROM EXPOSED SOILS, LEAVES, MULCH, VEHICULAR SOURCES SUCH AS LEAKING FUEL OR OIL, BRAKE FLUID, BRAKE DUST, GREASE, ANTIFREEZE, METALS, RUBBER FRAGMENTS, ROAD GRIT, SALTS AND SANDS, CONSTRUCTION TRASH AND DEBRIS, FERTILIZERS, CLEANING AGENTS, CHEMICALS, PAINT, ANIMAL WASTE, ELEVATED STORM RUNOFF TEMPERATURES, PESTICIDES AND PATHOGENS.
C2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:
1. INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES AS DETAILED IN THE STORMWATER POLLUTION PREVENTION MEASURES MAINTENANCE REQUIREMENTS BEGINNING IMMEDIATELY AFTER INSTALLATION AND CONTINUING UNTIL VEGETATION HAS BEEN SUFFICIENTLY ESTABLISHED AND ALL CONSTRUCTION ACTIVITY IS COMPLETE.
2. REMOVE ALL SILT FENCES, ETC. ONLY AFTER SEEDING AND SUFFICIENT VEGETATIVE GROWTH HAS BEEN ESTABLISHED IN EACH AREA TO A POINT WHERE SEDIMENT/POLLUTANTS WILL NOT ENTER THE CREEK.
3. INSPECTION AND MAINTENANCE OF ALL AREAS IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTED BY THE BOONE COUNTY SURVEYORS OFFICE. INSPECTION AND MAINTENANCE OF BMP'S SHALL FOLLOW TIME TABLES SET FORTH IN THE MAINTENANCE AND OPERATIONS MANUAL.
C3 DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES -
1. TEMPORARY AND PERMANENT SEEDING.
2. ON GOING MAINTENANCE BY THE OWNER TO INSURE THAT SEDIMENT, TRASH AND POLLUTANTS DO NOT LEAVE THE SITE.
3. SEE BMP OPERATIONS AND MAINTENANCE MANUAL (O&M MANUAL) FOR DETAILS RELATED TO POST CONSTRUCTION STORMWATER QUALITY MEASURES
C4 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE - SEE STORMWATER POLLUTION PREVENTION PLAN SHEETS C501-C502 FOR LOCATIONS AND SHEET C503-C504 FOR DETAILS AND SPECIFICATIONS.
C5 DESCRIPTION OF MAINTENANCE GUIDELINES FOR POST CONSTRUCTION STORMWATER QUALITY MEASURE - SEE OPERATIONS AND MAINTENANCE MANUAL.

CONSTRUCTION AND POST CONSTRUCTION

THE PURPOSE OF STAGING CONSTRUCTION DURING THE VARIOUS PHASES OF THE PROJECT IS TO LIMIT THE AMOUNT OF GROUND DISTURBED AT ANY GIVEN TIME AND TO PREVENT SEDIMENT FROM LEAVING THE SITE. FOR THIS REASON THE FOLLOWING SEQUENCING SHOULD BE FOLLOWED AS MUCH AS POSSIBLE.

CALL INDIANA UNDERGROUND PLANT PROTECTION SERVICE ("HOLEY MOLEY") AT 800-382-5544 TO CHECK THE LOCATION OF ANY UTILITIES TWO DAYS BEFORE WORK IS TO COMMENCE.

ESTABLISH ON-SITE LOCATION FOR OWNER/OPERATOR/CONTRACTOR PLACEMENT OF APPROVED PLANS AND RULE 5 NOI INSPECTION DOCUMENTATION.

BOONE COUNTY SURVEYORS OFFICE (317) 483-444 MUST BE NOTIFIED AT LEAST 48 HOURS BEFORE CONSTRUCTION IS SCHEDULED TO BEGIN. THE CONTRACTOR SHALL CONTACT THE BOONE COUNTY SURVEYORS OFFICE TO SET UP A PRE-CONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.

1. INSTALL A TEMPORARY STONE ACCESS DRIVE OFF ROAD (SEE EROSION CONTROL PLAN, SHEET C501-C502).
2. CONSTRUCT RULE 5 INFORMATION POSTING SITE, INSTALL TRASH DUMPSTER, AND PLACE PORT-O-LET.
3. INSTALL CONSTRUCTION AND SILT FENCING AS SHOWN ON THE PLANS.
4. PLACE TEMPORARY SEED IN ALL AREAS WHERE WORK WILL DISCONTINUE FOR 14 DAYS OR MORE.
5. IF SEEDED AREAS DO NOT PRODUCE A MINIMUM OF 70 PERCENT VEGETATIVE COVER CONTRACTOR SHALL RE-SEED TO OBTAIN ADEQUATE VEGETATIVE COVER.

ADDITIONAL STORMWATER POLLUTION PREVENTION MEASURES

VEHICLE AND EQUIPMENT MAINTENANCE

DESCRIPTION AND PURPOSE

PREVENT OR REDUCE THE CONTAMINATION OF STORMWATER RESULTING FROM VEHICLE AND EQUIPMENT MAINTENANCE BY RUNNING A "DRY AND CLEAN SITE". THE BEST OPTION WOULD BE TO PERFORM MAINTENANCE ACTIVITIES AT AN OFFSITE FACILITY. IF THIS OPTION IS NOT AVAILABLE THEN WORK SHOULD BE PERFORMED IN DESIGNATED AREAS ONLY, WHILE PROVIDING COVER FOR MATERIALS STORED OUTSIDE, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.

SUITABLE APPLICATIONS

THESE PROCEDURES ARE SUITABLE ON ALL CONSTRUCTION PROJECTS WHERE ON ONSITE YARD AREA IS NECESSARY FOR STORAGE AND MAINTENANCE OF HEAVY EQUIPMENT AND VEHICLES.

LIMITATIONS

ONSITE VEHICLE AND EQUIPMENT MAINTENANCE SHOULD ONLY BE USED WHERE IT IS IMPRACTICAL TO SEND VEHICLES AND EQUIPMENT OFFSITE FOR MAINTENANCE AND REPAIR. SENDING VEHICLES/EQUIPMENT OFFSITE SHOULD BE DONE IN CONJUNCTION WITH A STABILIZED CONSTRUCTION ENTRANCE/EXIT. OUTDOOR VEHICLE OR EQUIPMENT MAINTENANCE IS A POTENTIALLY SIGNIFICANT SOURCE OF STORMWATER POLLUTION. ACTIVITIES THAT CAN CONTAMINATE STORMWATER INCLUDE ENGINE REPAIR AND SERVICE, CHANGING OR REPLACEMENT OF FLUIDS, AND OUTDOOR EQUIPMENT STORAGE AND PARKING (ENGINE FLUID LEAKS).

IMPLEMENTATION

IF MAINTENANCE MUST OCCUR ONSITE, USE DESIGNATED AREAS, LOCATED AWAY FROM DRAINAGE COURSES. DEDICATED MAINTENANCE AREAS SHOULD BE PROTECTED FROM STORMWATER RUNON AND RUNOFF, AND SHOULD BE LOCATED AT LEAST 50 FT FROM DOWNSTREAM DRAINAGE FACILITIES AND WATERCOURSES.
DRIP PANS OR ABSORBENT PADS SHOULD BE USED DURING VEHICLE AND EQUIPMENT MAINTENANCE WORK THAT INVOLVES FLUIDS, UNLESS THE MAINTENANCE WORK IS PERFORMED OVER ON IMPERMEABLE SURFACE IN A DEDICATED MAINTENANCE AREA.
PLACE A STOCKPILE OF SPILL CLEANUP MATERIALS WHERE IT WILL BE READILY ACCESSIBLE.
ALL FUELING TRUCKS AND FUELING AREAS ARE REQUIRED TO HAVE SPILL KITS AND/OR USE OTHER SPILL PROTECTION DEVICES.
USE ABSORBENT MATERIALS ON SMALL SPILLS. REMOVE THE ABSORBENT MATERIALS PROMPTLY AND DISPOSE OF PROPERLY.
INSPECT ONSITE VEHICLES AND EQUIPMENT DAILY AT STARTUP FOR LEAKS, AND REPAIR IMMEDIATELY.
KEEP VEHICLES AND EQUIPMENT CLEAN; DO NOT ALLOW EXCESSIVE BUILD-UP OF OIL AND GREASE.
SEGREGATE AND RECYCLE WASTES, SUCH AS GREASES, USED OIL OR OIL FILTERS, ANTIFREEZE, CLEANING SOLUTIONS, AUTOMOTIVE BATTERIES, HYDRAULIC AND TRANSMISSION FLUIDS. PROVIDE SECONDARY CONTAINMENT AND COVERS FOR THESE MATERIALS IF STORED ONSITE.
TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER MAINTENANCE AND SPILL CLEANUP PROCEDURES.
DRIP PANS OR PLASTIC SHEETING SHOULD BE PLACED UNDER ALL VEHICLES AND EQUIPMENT PLACED ON DOCKS, BARGES, OR OTHER STRUCTURES OVER WATER BODIES WHEN THE VEHICLE OR EQUIPMENT IS PLANNED TO BE IDLE FOR MORE THAN 1 HOUR.
PROPERLY DISPOSE OF USED OILS, FLUIDS, LUBRICANTS, AND SPILL CLEANUP MATERIALS.
DO NOT PLACE USED OIL IN A DUMPSTER OR POUR INTO A STORM DRAIN OR WATERCOURSE.
PROPERLY DISPOSE OF OR RECYCLE USED BATTERIES.
DO NOT BURY USED TIRES.
REPAIR LEAKS OF FLUIDS AND OIL IMMEDIATELY.
LISTED BELOW IS FURTHER INFORMATION IF YOU MUST PERFORM VEHICLE OR EQUIPMENT MAINTENANCE ONSITE.

INSPECTION AND MAINTENANCE

INSPECT AND VERIFY THAT BMP'S ARE IN PLACE PRIOR TO THE COMMENCEMENT OF ASSOCIATED ACTIVITIES. WHILE ACTIVITIES ASSOCIATED WITH THE BMP ARE UNDER WAY, INSPECT WEEKLY TO VERIFY CONTINUED BMP IMPLEMENTATION.
KEEP AMPLE SUPPLIES OF SPILL CLEANUP MATERIALS ONSITE.
MAINTAIN WASTE FLUID CONTAINERS IN LEAK PROOF CONDITION.
VEHICLES AND EQUIPMENT SHOULD BE INSPECTED ON EACH DAY OF USE. LEAKS SHOULD BE REPAIRED IMMEDIATELY OR THE PROBLEM VEHICLE(S) OR EQUIPMENT SHOULD BE REMOVED FROM THE PROJECT SITE.
INSPECT EQUIPMENT FOR DAMAGED HOSES AND LEAKY GASKETS ROUTINELY. REPAIR OR REPLACE AS NEEDED.

VEHICLE AND EQUIPMENT FUELING

DESCRIPTION AND PURPOSE

VEHICLE EQUIPMENT FUELING PROCEDURES AND PRACTICES ARE DESIGNED TO PREVENT FUEL SPILLS AND LEAKS, AND REDUCE OR ELIMINATE CONTAMINATION OF STORMWATER. THIS CAN BE ACCOMPLISHED BY USING OFFSITE FACILITIES, FUELING IN DESIGNATED AREAS ONLY, ENCLOSING OR COVERING STORED FUEL, IMPLEMENTING SPILL CONTROLS, AND TRAINING EMPLOYEES AND SUBCONTRACTORS IN PROPER FUELING PROCEDURES.

LIMITATIONS

ONSITE VEHICLE AND EQUIPMENT FUELING SHOULD ONLY BE USED WHERE IT IS IMPRACTICAL TO SEND VEHICLES AND EQUIPMENT OFFSITE FOR FUELING. SENDING VEHICLES AND EQUIPMENT OFFSITE SHOULD BE DONE IN CONJUNCTION WITH A STABILIZED CONSTRUCTION ENTRANCE/EXIT.

IMPLEMENTATION

USE OFFSITE FUELING STATIONS AS MUCH AS POSSIBLE. THESE BUSINESSES ARE BETTER EQUIPPED TO HANDLE FUEL AND SPILLS PROPERLY. PERFORMING THIS WORK OFFSITE CAN ALSO BE ECONOMICAL BY ELIMINATING THE NEED FOR A SEPARATE FUELING AREA AT A SITE.
DISCOURAGE "TOPPING-OFF" OF FUEL TANKS.
ABSORBENT SPILL CLEANUP MATERIALS AND SPILL KITS SHOULD BE AVAILABLE IN FUELING AREAS AND ON FUELING TRUCKS, AND SHOULD BE DISPOSED OF PROPERLY AFTER USE.
DRIP PANS OR ABSORBENT POOLS SHOULD BE USED DURING VEHICLE AND EQUIPMENT FUELING, UNLESS THE FUELING IS PERFORMED OVER AN IMPERMEABLE SURFACE IN A DEDICATED FUELING AREA.
USE ABSORBENT MATERIALS ON SMALL SPILLS. DO NOT HOSE DOWN OR BURY THE SPILL. REMOVE THE ABSORBENT MATERIALS PROMPTLY AND DISPOSE OF PROPERLY.
AVOID MOBILE FUELING OF MOBILE CONSTRUCTION EQUIPMENT AROUND THE SITE; RATHER, TRANSPORT THE EQUIPMENT TO DESIGNATED FUELING AREAS.
TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER FUELING AND CLEANUP PROCEDURES.
DEDICATED FUELING AREAS SHOULD BE PROTECTED FROM STORMWATER RUNON AND RUNOFF, AND SHOULD BE LOCATED AT LEAST 50 FT. AWAY FROM DOWNSTREAM DRAINAGE FACILITIES AND WATERCOURSES. FUELING MUST BE PERFORMED ON LEVEL-GRADE AREAS.
PROTECT FUELING AREAS WITH BERMS AND DIKES TO PREVENT RUNON, RUNOFF, AND TO CONTAIN SPILLS.
NOZZLES USED IN VEHICLE AND EQUIPMENT FUELING SHOULD BE EQUIPPED WITH AN AUTOMATIC SHUTOFF TO CONTROL DRIPS. FUELING OPERATIONS SHOULD NOT BE LEFT UNATTENDED.
FEDERAL, STATE, AND LOCAL REQUIREMENTS SHOULD BE OBSERVED FOR ANY STATIONARY ABOVE GROUND STORAGE TANKS.

INSPECTION AND MAINTENANCE

VEHICLES AND EQUIPMENT SHOULD BE INSPECTED EACH DAY OF USE FOR LEAKS. LEAKS SHOULD BE REPAIRED IMMEDIATELY OR PROBLEM VEHICLES OR EQUIPMENT SHOULD BE REMOVED FROM THE PROJECT SITE.
KEEP AMPLE SUPPLIES OF SPILL CLEANUP MATERIALS ONSITE.
IMMEDIATELY CLEAN UP SPILLS AND PROPERLY DISPOSE OF CONTAMINATED SOIL AND CLEANUP MATERIALS.

SOLID WASTE MANAGEMENT

DESCRIPTION AND PURPOSE

SOLID WASTE MANAGEMENT PROCEDURES AND PRACTICES ARE DESIGNED TO PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORMWATER FROM SOLID OR CONSTRUCTION WASTE BY PROVIDING DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS, ARRANGING FOR REGULAR DISPOSAL, AND TRAINING EMPLOYEES AND SUBCONTRACTORS.

SUITABLE APPLICATIONS

THIS BMP IS SUITABLE FOR CONSTRUCTION SITES WHERE THE FOLLOWING WASTES ARE GENERATED OR STORED:
- SOLID WASTE GENERATED FROM TREES AND SHRUBS REMOVED DURING LAND CLEARING, DEMOLITION OF EXISTING STRUCTURES (RUBBLE), AND BUILDING CONSTRUCTION.
- PACKING MATERIALS INCLUDING WOOD, PAPER, AND PLASTIC.
- SCRAP OR SURPLUS BUILDING MATERIALS INCLUDING SCRAP METALS, RUBBER, PLASTIC, GLASS PIECES AND MASONRY PRODUCTS.
- DOMESTIC WASTES INCLUDING FOOD CONTAINERS SUCH AS BEVERAGE CANS, COFFEE CUPS, PAPER BAGS, PLASTIC WRAPPERS, AND CIGARETTES.
- CONSTRUCTION WASTES INCLUDING BRICK, MORTAR, TIMBER, STEEL AND METAL SCRAPS, PIPE AND ELECTRICAL CUTTINGS, NON-HAZARDOUS EQUIPMENT PORTS, STYROFOAM AND OTHER MATERIALS SEND TRANSPORT AND PACKAGE CONSTRUCTION MATERIALS.

IMPLEMENTATION

THE FOLLOWING STEPS WILL HELP KEEP A CLEAN SITE AND REDUCE STORMWATER POLLUTION:
- SELECT DESIGNATED WASTE COLLECTION AREAS ONSITE.
- INFORM TRASH-HAULING CONTRACTORS THAT YOU WILL ACCEPT ONLY WATERTIGHT DUMPSTERS FOR ONSITE USE.
- INSPECT DUMPSTERS FOR LEAKS AND REPAIR ANY DUMPSTER THAT IS NOT WATERTIGHT.
- PROVIDE AN ADEQUATE NUMBER OF CONTAINERS WITH LIDS OR COVERS THAT CAN BE PLACED OVER THE CONTAINER TO KEEP RAIN OUT OR TO PREVENT LOSS OF WASTES WHEN IT IS WINDY.
- PLAN FOR ADDITIONAL CONTAINERS AND MORE FREQUENT PICKUP DURING THE DEMOLITION PHASE OF CONSTRUCTION.
- COLLECT SITE TRASH DAILY, ESPECIALLY DURING RAINY AND WINDY CONDITIONS.
- REMOVE THIS SOLID WASTE PROMPTLY SINCE EROSION AND SEDIMENT CONTROL DEVICES TEND TO COLLECT LITTER.
- MAKE SURE THAT TOXIC LIQUID WASTES (USED OILS, SOLVENTS, AND PAINTS) AND CHEMICALS (ACIDS, PESTICIDES, ADDITIVES, CURING COMPOUNDS) ARE NOT DISPOSED OF IN DUMPSTERS DESIGNATED FOR CONSTRUCTION DEBRIS.
- DO NOT HOSE OUT DUMPSTERS ON THE CONSTRUCTION SITE. LEAVE DUMPSTER CLEANING TO THE TRASH HAULING CONTRACTOR.
- ARRANGE FOR REGULAR WASTE COLLECTION BEFORE CONTAINERS OVERFLOW.
- CLEAN UP IMMEDIATELY IF A CONTAINER DOES SPILL.
- MAKE SURE THAT CONSTRUCTION WASTE IS COLLECTED, REMOVED, AND DISPOSED OF ONLY AT AUTHORIZED DISPOSAL AREAS.
- INSPECT THE STORM MANHOLE WITH SNOUT. REMOVE ANY FLOATING DEBRIS ON A REGULAR BASIS AND HAVE SUMPS PROFESSIONALLY CLEANED ONCE A YEAR. **CAUTION SHOULD BE NOTED - ALL SUMPS ARE DEEP AND POTENTIALLY DANGEROUS. EXTREME CARE AND SAFETY MEASURES ALONG WITH OSHA GUIDELINES SHOULD BE FOLLOWED.

COLLECTION, STORAGE, AND DISPOSAL

LITTERING ON THE PROJECT SITE SHOULD BE PROHIBITED.
TO PREVENT CLOGGING OF THE STORM DRAINAGE SYSTEM, LITTER AND DEBRIS REMOVAL FROM DRAINAGE GRATES, TRASH ROCKS, AND DITCH LINES SHOULD BE A PRIORITY.
TRASH RECEPTACLES SHOULD BE PROVIDED IN THE CONTRACTOR'S YARD, FIELD TRAILER AREAS, AND AT LOCATIONS WHERE WORKERS CONGREGATE FOR LUNCH AND BREAK PERIODS.
LITTER FROM WORK AREAS WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT SITE SHOULD BE COLLECTED AND PLACED IN WATERTIGHT DUMPSTERS AT LEAST WEEKLY, REGARDLESS OF WHETHER THE LITTER WAS GENERATED BY THE CONTRACTOR, THE PUBLIC, OR OTHERS.
COLLECTED LITTER AND DEBRIS SHOULD NOT BE PLACED IN OR NEXT TO DRAIN INLETS, STORMWATER DRAINAGE SYSTEMS, OR WATERCOURSES.
DUMPSTERS OF SUFFICIENT SIZE AND NUMBER SHOULD BE PROVIDED TO CONTAIN THE SOLID WASTE GENERATED BY THE PROJECT.
FULL DUMPSTERS SHOULD BE REMOVED FROM THE PROJECT SITE AND THE CONTENTS SHOULD BE DISPOSED OF BY THE TRASH HAULING CONTRACTOR.
CONSTRUCTION DEBRIS AND WASTE SHOULD BE REMOVED FROM THE SITE BIWEEKLY OR MORE FREQUENTLY AS NEEDED.
CONSTRUCTION MATERIAL VISIBLE TO THE PUBLIC SHOULD BE STORED OR STOCKED IN AN ORDERLY MANNER.
STORMWATER RUNON SHOULD BE PREVENTED FROM CONTACTING STORED SOLID WASTE THROUGH THE USE OF BERMS, DIKES, OR OTHER TEMPORARY DIVERSION STRUCTURES OR THROUGH THE USE OF MEASURES TO ELEVATE WASTE FROM SITE SURFACES.
SOLID WASTE STORAGE AREAS SHOULD BE LOCATED AT LEAST 50 FT. FROM DRAINAGE FACILITIES AND WATER COURSES AND SHOULD NOT BE LOCATED IN AREAS PRONE TO FLOODING OR PONDING.

INSPECTION AND MAINTENANCE

INSPECT AND VERIFY THAT ACTIVITY-BASED BMP'S ARE IN PLACE PRIOR TO THE COMMENCEMENT OF ASSOCIATED ACTIVITIES. WHILE ACTIVITIES ASSOCIATED WITH THE BMP ARE UNDER WAY, INSPECT WEEKLY TO VERIFY CONTINUED BMP IMPLEMENTATION.
INSPECT BMP'S SUBJECT TO NON-STORMWATER DISCHARGE DAILY WHILE NON-STORMWATER DISCHARGES OCCUR.
INSPECT CONSTRUCTION WASTE AREA REGULARLY.
ARRANGE FOR REGULAR WASTE COLLECTION.

EVALUATION FOR CONSTRUCTION PROJECTS

A trained individual shall perform a written evaluation of the project site.

a By the end of the next business day following each rainfall that exceeds 0.5"
b A minimum of one (1) time per week

Project Name: ______________________

Name of Trained Individual: ______________________ Date of Inspection: __________

Is this Evaluation following a rainfall ____ Yes _____ No If yes – date the rain stopped: _________ Inches: ______

NO	PROBLEM or CONCERN	YES	NO	N/A
1	Is the site information posted at the entrance?			
2	Are all necessary permits attained and special provisions being implemented?			
3	Is a construction entrance installed? Is it effective? Is it enough			
4	Public and private streets are clean?			
5	Are appropriate practices installed where stormwater leaves the site?			
6	Silt fence is entrenched into the ground?			
7	Silt fence is upright? Fabric and stakes meet specifications? Fabric is not to torn?			
	Terminated to higher ground? Property joined at ends?			
8	Sediment basins and traps are installed according to the plan? The pipe or rock spillway is functional?			
9	The earthwork for erosion and sediment control practices is properly graded, seeded, and/or mulched?			
10	Diversion swales and/or waterbars are installed to plan and protected?			
11	Perimeter practices have adequate capacity and do not need to be cleaned out?			
12	Inlet protection is installed on all functional inlets? (not filter fabric under grate)			
13	Inlet protection is installed so water does not flow under it?			
14	The frame, cross-bracing, and/or stakes are adequate and meet specifications?			
15	The fabric, straw, mulch, and/or stone is intact without holes or tears?			
16	Catch basin insert protection is installed where required?			
17	Sediment has been removed from the practice?			
18	Swales and ditches have been stabilized or protected?			
19	Stormwater outlets are adequately stabilized?			
20	Temporary Stabilization of distributed ground has been addressed?			
21	Disturbed areas that will lie dormant for 15 days are planned to be protected?			
22	All protected dormant areas meet a minimum 70% coverage			
23	Growing vegetation has sufficient water and/or nutrients to grow?			
24	Permanent stabilization of disturbed ground is progressing through the project?			
25	Final grading and stabilization is progressing on completed areas?			
26	The soil has been properly prepared for seeding?			
27	Hard or soft armoring is installed where natural vegetation will erode?			
28	Water pumping operations have a protected outlet and discharge water is clear?			
29	A designated washout is established for concrete trucks?			
30	A dumpster is on-site for trash disposal?			
31	Fuel tanks and other toxic materials are safely stored and protected?			
32	Smaller construction sites not required to file a separate NOI are complying with the overall plan?			
33				
34				

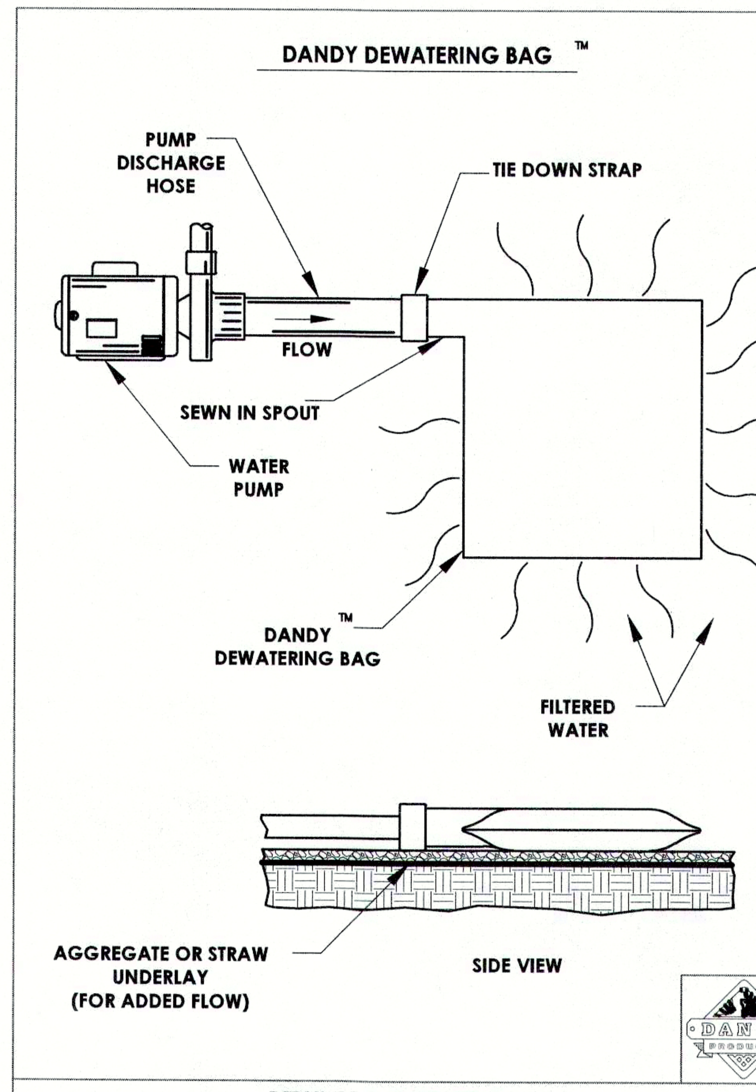
ALL PROBLEMS OR CONCERNS NEED TO BE ADDRESSED WITH A CORRECTIVE ACTION

Identify the problem by number and/or provide additional explanation as needed.

Developer/Owner Representative contacted – name: ______________________ date: __________

Contractor Representative contacted – name: ______________________ date: __________

Report Submitted by: ______________________ date: __________



DETAIL OF A DEWATERING BAG

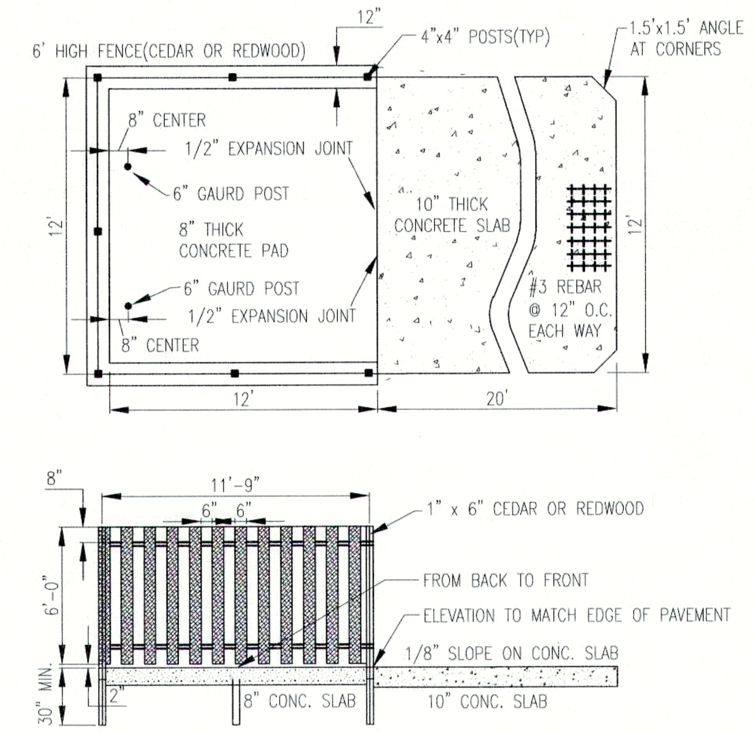
CIVIL ENGINEERS
LAND SURVEYORS
DEVELOPMENT CONSULTANTS
GEOTECHNICAL
ENVIRONMENTAL
CONSTRUCTION STAKING
CONSTRUCTION MAT. TESTING

TERRA SITE DEVELOPMENT
1307 W. 161st Street Westfield, IN 46074
P: 317.399.1216 F: 317.663.3049
www.TERRAsitedev.com

REVISIONS AND ISSUES | DATE | BY

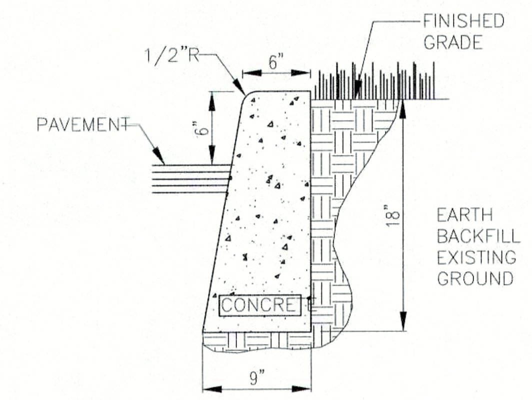
CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E
R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202
EROSION CONTROL NOTES AND SPECS

PLAN DATE:		
7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C503		

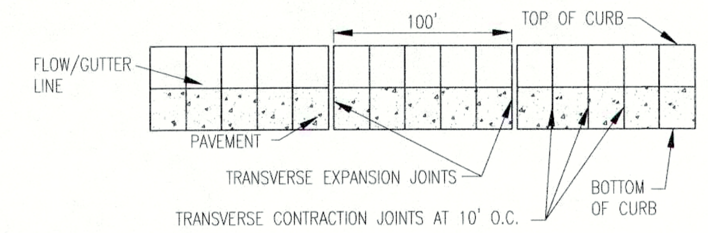


NOTE:
REFER TO PAVEMENT SPECIFICATIONS FOR CONCRETE REQUIREMENTS

DUMPSTER PAD & ENCLOSURE DETAIL
NOT TO SCALE



6" X 18" MONOLITHIC (STRAIGHT) CURB DETAIL
NOT TO SCALE

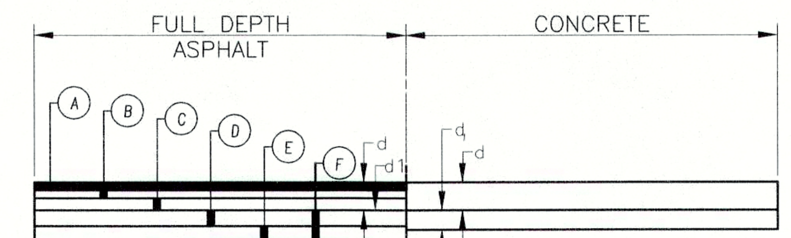


CURB JOINT DETAIL
NOT TO SCALE

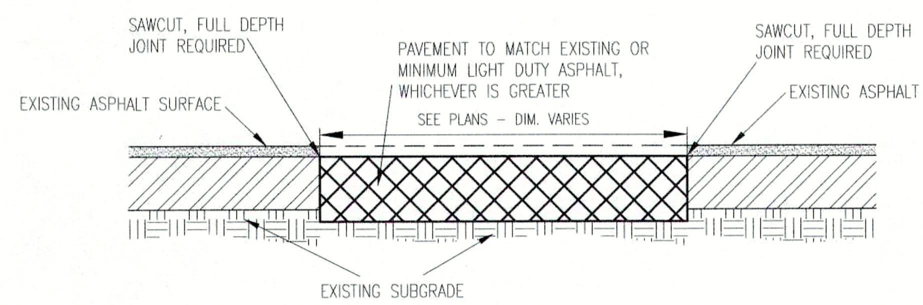
	LIGHT DUTY ASPHALT (d+d1=9")	HEAVY DUTY ASPHALT (d+d1=6.5"+8"=14.5")	RIGHT-OF-WAY ASPHALT
A	1.0" HMA 9.5MM SURFACE, TYPE A	1.5" HMA 9.5MM SURFACE, TYPE A	N/A
B	2.0" HMA 12.5MM BINDER, TYPE A	2.5" HMA 12.5MM BINDER, TYPE A	
C	6" #53 CRUSHED LIMESTONE	2.5" HMA 25MM BASE, TYPE A	
D	N/A	8" #53 CRUSHED LIMESTONE	
E	N/A		
F	N/A		

HEAVY DUTY CONCRETE PAVEMENT
d=6" CONCRETE 6x6 W.W.F.
d1=6" #53 CRUSHED LIMESTONE

NOTES:
1. ADD 1" TO ALL TOTAL BITUMINOUS AND CONCRETE THICKNESSES IF ANTICIPATED TRUCK TRAFFIC IS GREATER THAN 10%.
2. SUBGRADE SHALL BE PREPARED PER INDOT STANDARD SPECIFICATIONS SECTION 207, TYPE II.
3. ADD TACK COAT BETWEEN LIFTS.
4. CONTRACTOR SHALL COORDINATE PAVEMENT SECTIONS SHOWN W/ OWNER'S GEOTECHNICAL CONSULTANT.

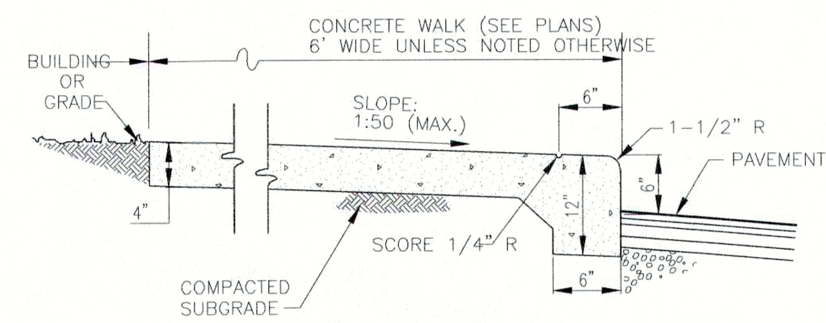


TYPICAL PAVEMENT SECTION DETAIL
NOT TO SCALE

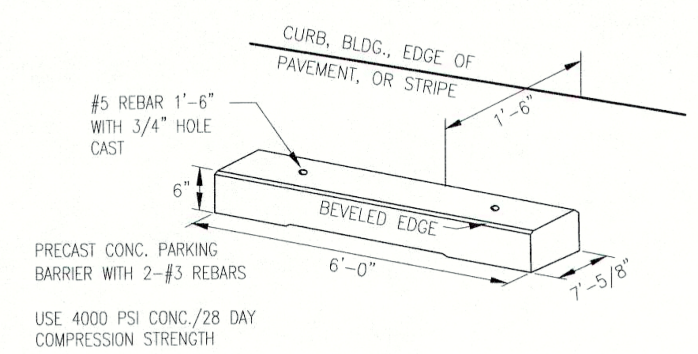


NOTE: REMOVE EXISTING PAVEMENT AND INSTALL PATCHING AT EXISTING CROSS SLOPE. REPAIR SUBGRADE IF NECESSARY. COORDINATE WITH OWNER PRIOR TO SUBGRADE REPAIR.
ASPHALT TACK COAT REQUIRED FOR EACH PAVEMENT SECTION/LIFT

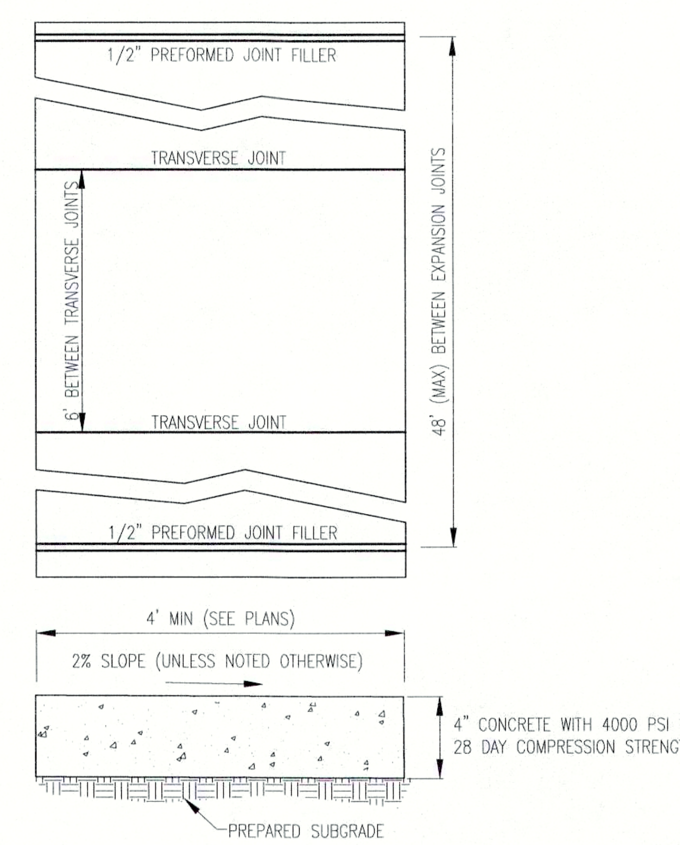
ASPHALT PATCHING DETAIL
NOT TO SCALE



CONCRETE CURB AND WALK
NOT TO SCALE



PRECAST CONCRETE PARKING BARRIER
NOT TO SCALE



TYPICAL SIDEWALK SECTION
NOT TO SCALE

SIDEWALK TRANSITION DETAIL AT DRIVES
NOT TO SCALE
REFERENCE INDOT STANDARD DETAILS E604-SDWK

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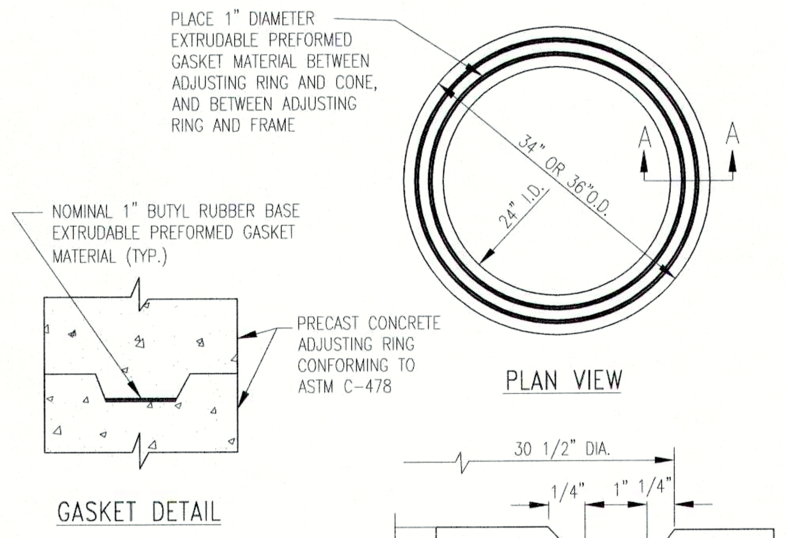
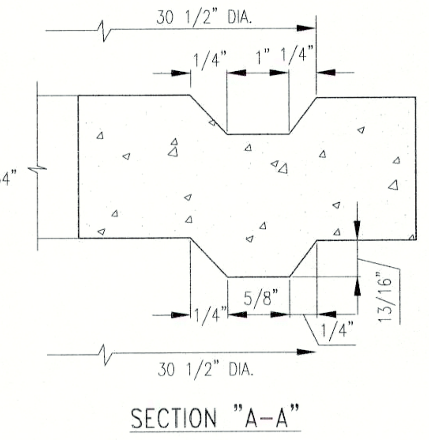
CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E

R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202

GENERAL DETAILS

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C801		

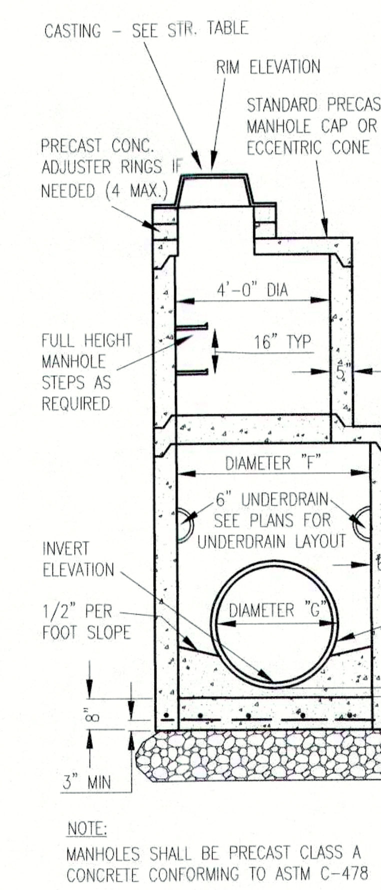




GENERAL NOTES:
BUTYL RUBBER BASE GASKET MATERIAL SHALL CONFORM TO AASHTO M-198 AND FEDERAL SPECIFICATIONS SS-S-210A. THE EXTRUDABLE PREFORMED GASKET SHALL BE USED BETWEEN THE ADJUSTING RING AND CONE, AND BETWEEN THE ADJUSTING RING AND CASTING. THE GASKET MATERIAL SHALL BE AS MANUFACTURED BY HAMILTON KENT-SEAL OR APPROVED EQUAL

ADJUSTING RING DETAIL

NOT TO SCALE



PIPE SIZE (DIA. "G")	MANHOLE (DIA. "F") PIPES ENTERING/ LEAVING AT 0-45 DEGREES	MANHOLE (DIA. "F") PIPES ENTERING/ LEAVING AT 45-90 DEGREES
12"-21"	48" TYPE C	48" TYPE C
24"	48" TYPE C	60" TYPE J
27"-30"	60" TYPE J	60" TYPE J
33"-36"	60" TYPE J	72" TYPE K
42"	72" TYPE K	84"
48"	72"	96"

NOTE: TYPE # INDICATES INDOT EQUIVALENT STORM MANHOLE TYPE

CONCRETE REDUCER CAP

JOINTS BETWEEN MANHOLE SECTIONS SHALL BE MADE WITH AN APPROVED RUBBER GASKET IN ACCORDANCE WITH ASTM C-443 OR A 1" DIAMETER NON-ASPHALTIC MASTIC (KENT SEAL OR APPROVED EQUAL) CONFORMING TO AASHTO M-198 AND FEDERAL SPECIFICATIONS SS-S-210A.

PREFORMED HOLE MAX SIZE OF PIPE O.D. + 6" FILLED WITH CEMENT GROUT TO PREVENT LEAKAGE

BASE SHALL BE POURED IN PLACE OR PRECAST BOTH SHALL HAVE #4 BARS-12" O.C. BOTH WAYS

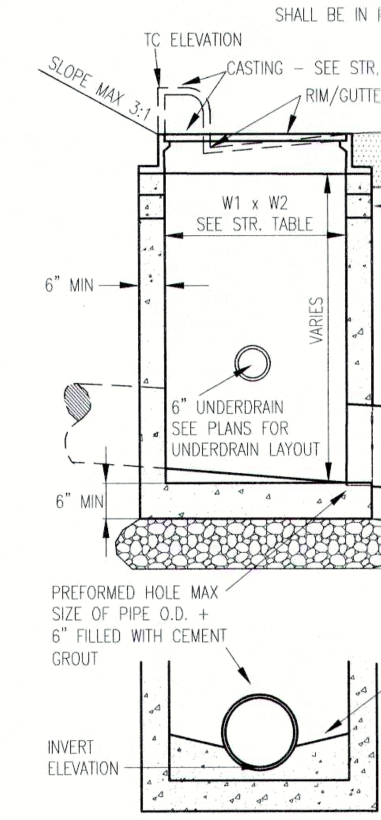
GRANULAR LEVELING MATERIAL REQUIRED FOR PRECAST BASE. GRANULAR MATERIAL SHALL BE No. 8 OR No. 53 STONE MEETING INDOT STANDARD SPECIFICATIONS AT A MINIMUM 6 INCHES IN DEPTH AND COMPACTED TO 95% STD. PROCTOR DENSITY.

NOTE:
MANHOLES SHALL BE PRECAST CLASS A CONCRETE CONFORMING TO ASTM C-478

STANDARD STORM MANHOLE

NOT TO SCALE

GENERAL NOTES:
STORM BOX STRUCTURES SHALL BE PRECAST CONCRETE CLASS A WITH A 4000 PSI. 28 DAY COMPRESSIVE STRENGTH. THE STRUCTURE DESIGN SHALL BE IN FULL ACCORDANCE WITH ASTM C890



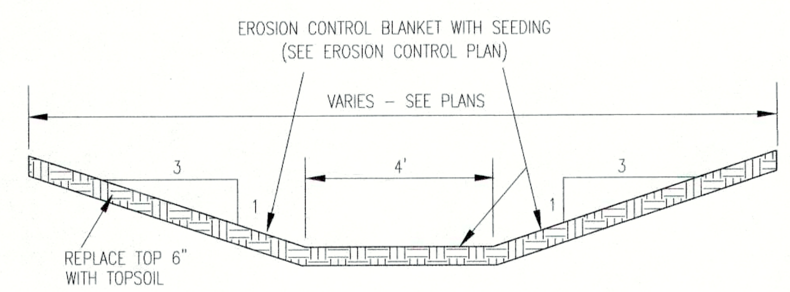
THE ADJUSTMENT OF CASTING FRAMES AND GRATES SHALL BE ACCOMPLISHED USING PRECAST CONCRETE SPACERS OF A MINIMAL NOMINAL THICKNESS OF 6 INCHES. THE MAXIMUM NUMBER OF SPACERS ALLOWED SHALL BE FOUR (4). A SOILTIGHT SEAL SHALL BE PROVIDED BETWEEN EACH COMPONENT OF THE CONCRETE STRUCTURE AND SPACERS BY USE OF NON-ASPHATIC MASTIC OR EXTRUDABLE PREFORMED GASKET MATERIAL.

GRANULAR LEVELING MATERIAL REQUIRED FOR PRECAST BASE. GRANULAR MATERIAL SHALL BE No. 8 OR No. 53 STONE MEETING INDOT STANDARD SPECIFICATIONS AT A MINIMUM 6 INCHES IN DEPTH AND COMPACTED TO 95% STD. PROCTOR DENSITY.

BENCH WALLS SHALL BE SHAPED AND FORMED FOR A CLEAN TRANSITION FOR SMOOTH FLOWS THROUGH THE BOX STRUCTURE. THE BENCH WALL SHALL FORM A DEFINED CHANNEL, TO A MINIMUM HEIGHT OF 30 PERCENT OF THE INSIDE DIAMETER OF THE PIPE, CONSTRUCTED AT A MIN. ½ INCH PER FOOT SLOPE TO THE INLET WALL.

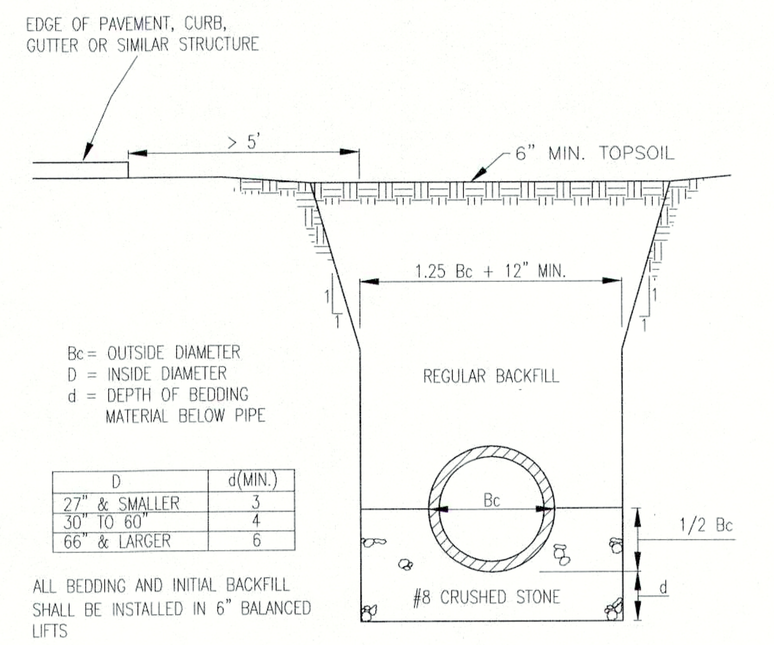
STORM BOX STRUCTURE

NOT TO SCALE



TYPICAL SWALE SECTION

NOT TO SCALE



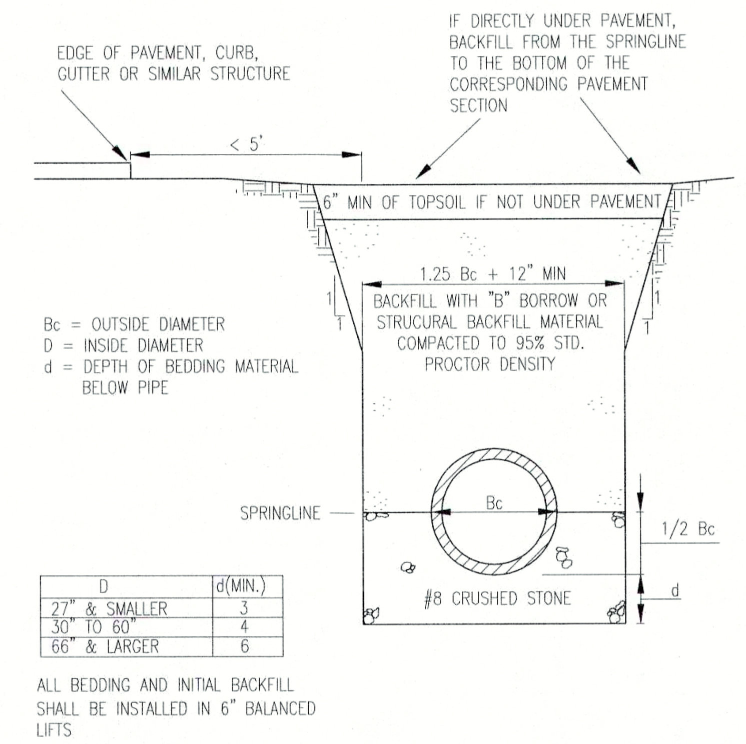
Bc= OUTSIDE DIAMETER
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

D	d(MIN.)
27" & SMALLER	3
30" TO 60"	4
66" & LARGER	6

ALL BEDDING AND INITIAL BACKFILL SHALL BE INSTALLED IN 6" BALANCED LIFTS

RCP BEDDING SECTION > 5' FROM EDGE OF PAVEMENT

NOT TO SCALE



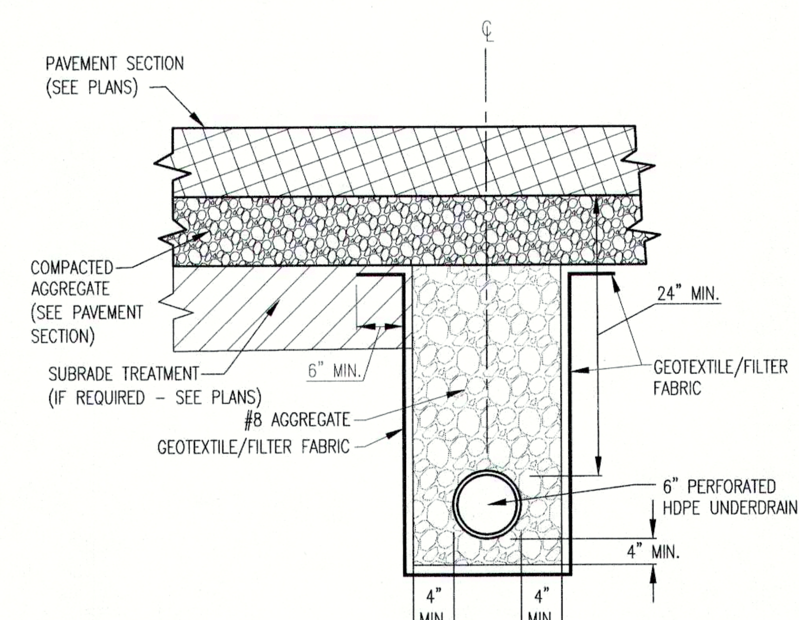
Bc = OUTSIDE DIAMETER
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

D	d(MIN.)
27" & SMALLER	3
30" TO 60"	4
66" & LARGER	6

ALL BEDDING AND INITIAL BACKFILL SHALL BE INSTALLED IN 6" BALANCED LIFTS

RCP BEDDING SECTION < 5' FROM EDGE OF PAVEMENT

NOT TO SCALE

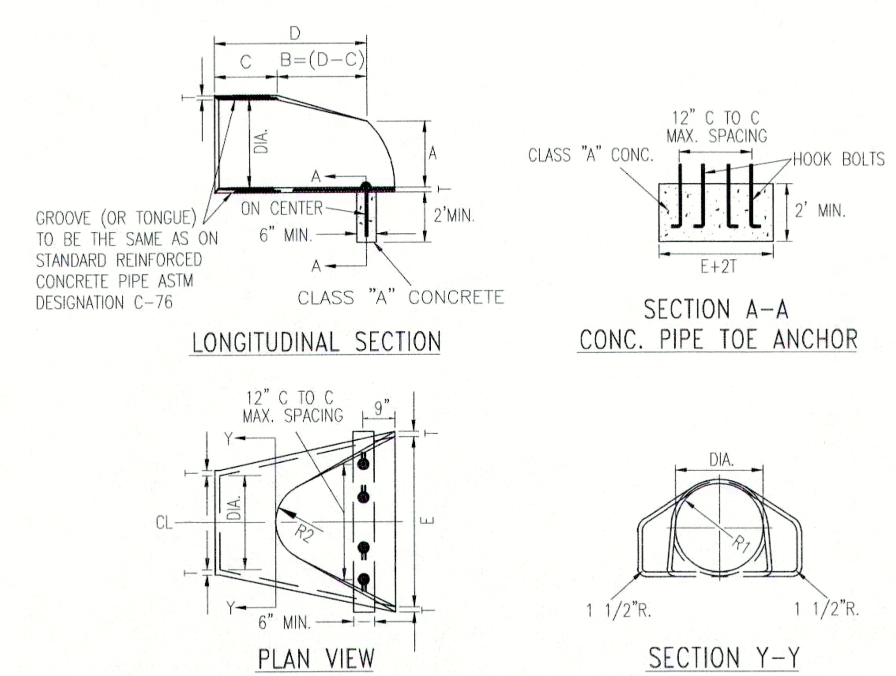


UNDERDRAINS NOTES:

1. SEE PLANS FOR EXACT LOCATION AND ORIENTATION OF UNDERDRAINS.
2. UNDERDRAIN GRADES SHALL NOT BE LESS THAN 0.30% AND THE PIPE SHALL BE DISCHARGED INTO STORM STRUCTURES OR OTHER APPROVED LOCATIONS.
3. IF UNDERDRAIN DISCHARGES INTO STORM STRUCTURE, THE UNDERDRAIN INLET INVERT SHALL BE 6" ABOVE THE OUTLET PIPES INVERT.
4. ALL MATERIAL (AGGREGATE, UNDERDRAIN, GEOTEXTILES, ETC.) SHALL MEET INDOT STANDARD SPECIFICATIONS.
5. FOR ADDITIONAL INSTALLATION PROCEDURES, SEE INDOT STANDRAD SPECIFICATIONS.

TYPICAL PIPE UNDERDRAIN DETAIL

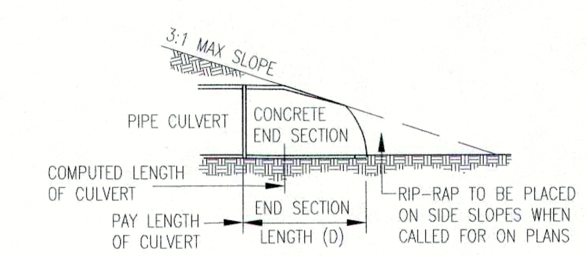
NOT TO SCALE



DIA.	T (MIN)	A=	C=	D=	E=	K=	R 1	R 2	APPROX. WEIGHT
12"	2"	5"	4'-3"	6'-2"	2'-0"	1.3	10 1/8"	9"	800
15"	2 1/4"	7"	4'-0"	6'-3"	2'-6"	1.5	12 1/2"	11"	1100
18"	2 1/2"	11"	4'-1"	6'-2"	3'-0"	1.8	15 1/2"	12"	1300
21"	2 3/4"	11"	3'-6"	6'-3"	3'-6"	2.1	16 1/8"	13"	1500
24"	3"	1'-0"	2'-8"	6'-3"	4'-0"	2.3	16 3/16"	14"	1800
27"	3 1/4"	1'-1"	2'-5"	6'-3"	4'-6"	2.6	18 3/16"	14 1/2"	2100
30"	3 1/2"	1'-2"	1'-10"	6'-3"	5'-0"	2.9	18 1/2"	15"	2400
33"	3 3/4"	1'-3"	3'-6"	8'-3"	5'-6"	3.1	23 3/4"	17 1/2"	4100
36"	4"	1'-5"	3'-1"	8'-3"	6'-0"	3.4	24 3/16"	20"	4200
TOLERANCE ± 1"									

GENERAL NOTES:

CONCRETE IN THESE END SECTIONS SHALL BE THE SAME GRADE AND STRENGTH AS SPECIFIED FOR REINFORCED CONCRETE PIPE, A.S.T.M. DESIGNATION C-76 (AS SET OUT IN STANDARD SPECIFICATIONS). REINFORCEMENT IN THE "C" PORTION SHALL BE THE SAME AS SPECIFIED FOR REINFORCED CONCRETE. REINFORCEMENT IN THE "B" PORTION SHALL HAVE A CROSS SECTIONAL AREA EQUAL TO THAT OF ONE LAYER OF STEEL IN THE "C" PORTION. THE END OF THE PIPE CULVERT SHALL BE PLACED IN THE CONCRETE END SECTION SO THAT THE FLOW LINES ARE FLUSHED. THE JOINT SHALL BE COMPLETELY FILLED WITH MORTAR. VARIATIONS IN DIMENSIONS - THE THICKNESS OF THE CONCRETE, THE POSITION OF STEEL, AND THE INTERNAL DIAMETER OF THE PIPE SHALL CONFORM WITH THE VARIATIONS IN DIMENSIONS AS PROVIDED IN THE SPECIFICATIONS FOR REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE, A.S.T.M. DESIGNATION C-76. WHERE VITRIFIED CLAY CULVERT OR CAST IRON CULVERT PIPE IS USED, A "PIPE END SECTION" COMPARABLE TO THAT AS SHOWN FOR METAL OR CONCRETE SHALL BE FURNISHED AND SHALL BE AS APPROVED BY THE ENGINEER, EXCEPT IN AREAS OF ACID OR MINE WATER THEN THE USE OF METAL END SECTION IS PROHIBITED. END SECTIONS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR EACH "PIPE END SECTION" COMPLETED IN PLACE AND ACCEPTED. CONCRETE PIPE TOE ANCHORS SHALL BE REQUIRED ON ALL CONCRETE PIPE END SECTIONS. THE COST THEREOF SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER EACH "PIPE END SECTION."



SLOPE DETAIL

NOTE: METAL PIPE END SECTIONS MAY BE USED WITH CONCRETE PIPE, WHERE PERMITTED BY LOCAL CODES, PROVIDING THE METHOD OF CONNECTION IS APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OF PIPE.

PRECAST CONCRETE END SECTION DETAIL

NOT TO SCALE

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R&B ARCHITECTS
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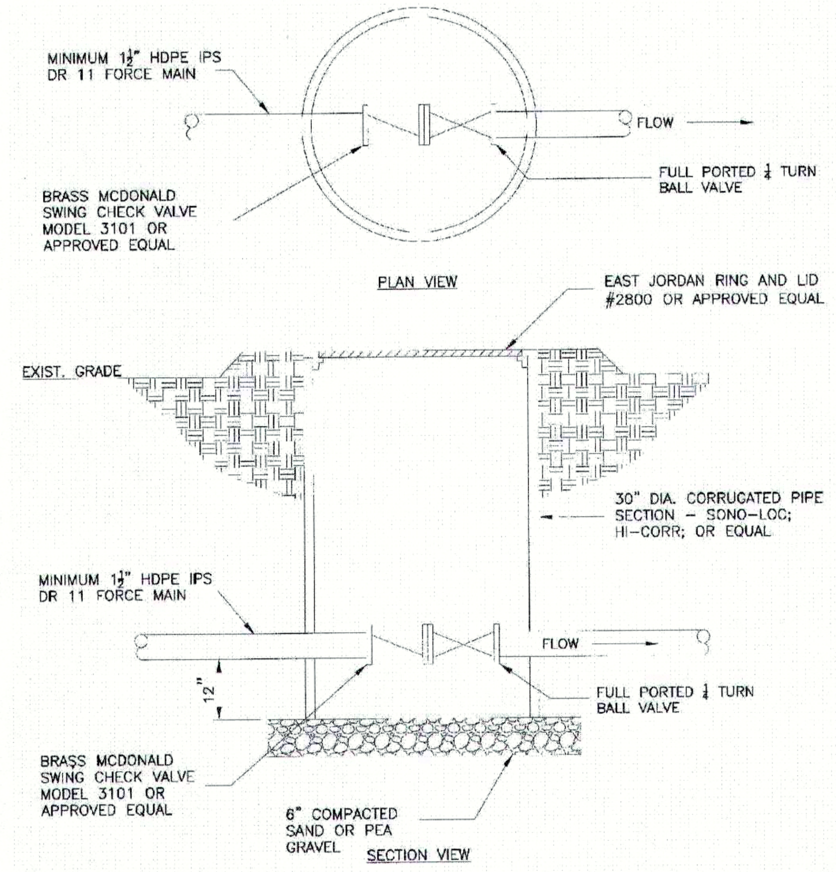
GENERAL DETAILS

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C802		



DETAIL - STANDARD SERVICE CONNECTION VALVE VAULT

SCALE: N.T.S.

STANDARD SERVICE CONNECTION VALVE VAULT NOTE:

1. CONTRACTOR IS RESPONSIBLE FOR DETERMINING VALVE VAULT OVERALL HEIGHT (MIN. 5'-0" FROM TOP OF FORCEMAIN) WITH RESPECT TO FORCEMAIN CENTERLINE TO FACILITATE COMPLETE EQUIPMENT INSTALLATION.

FIGURE 10-2

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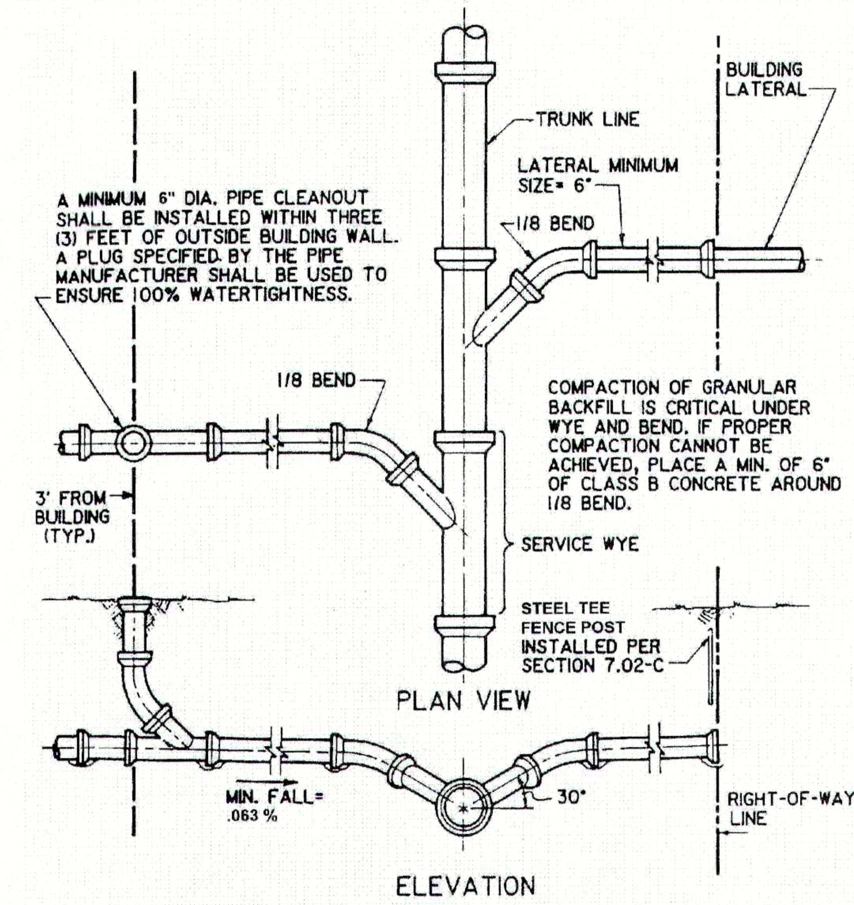
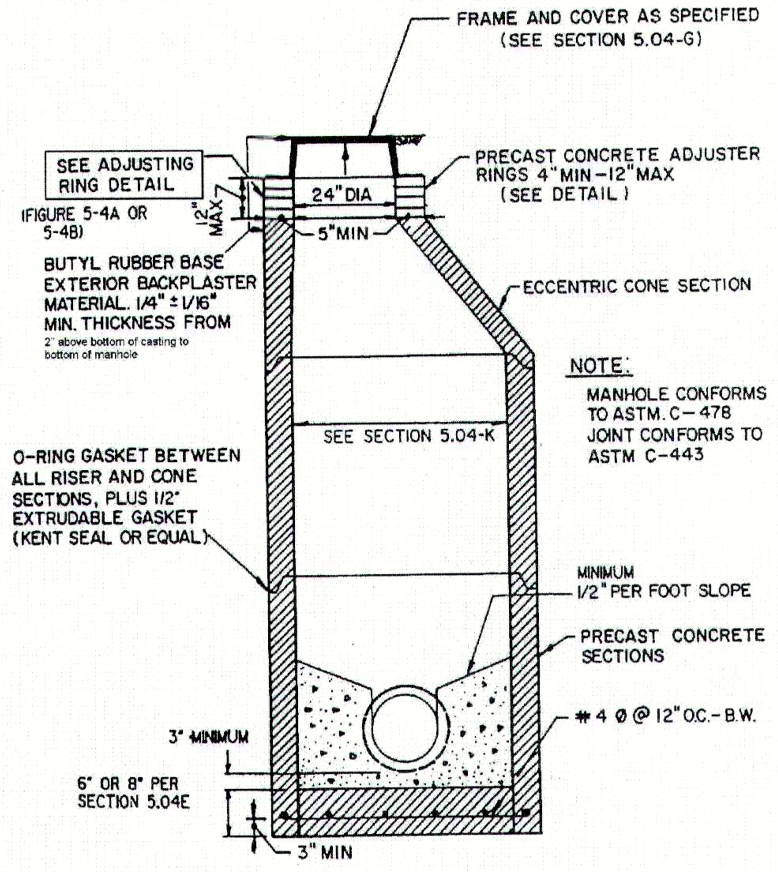


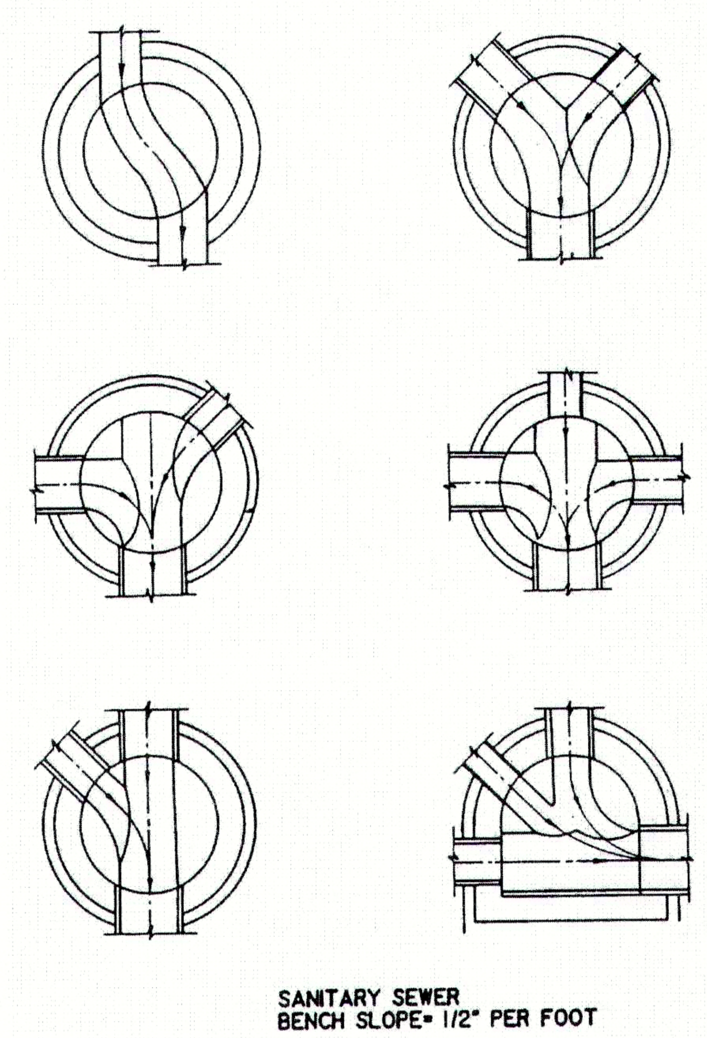
SERVICE CONNECTION FOR SHALLOW SEWERS (LESS THAN 15' DEEP)

FIGURE 7-4



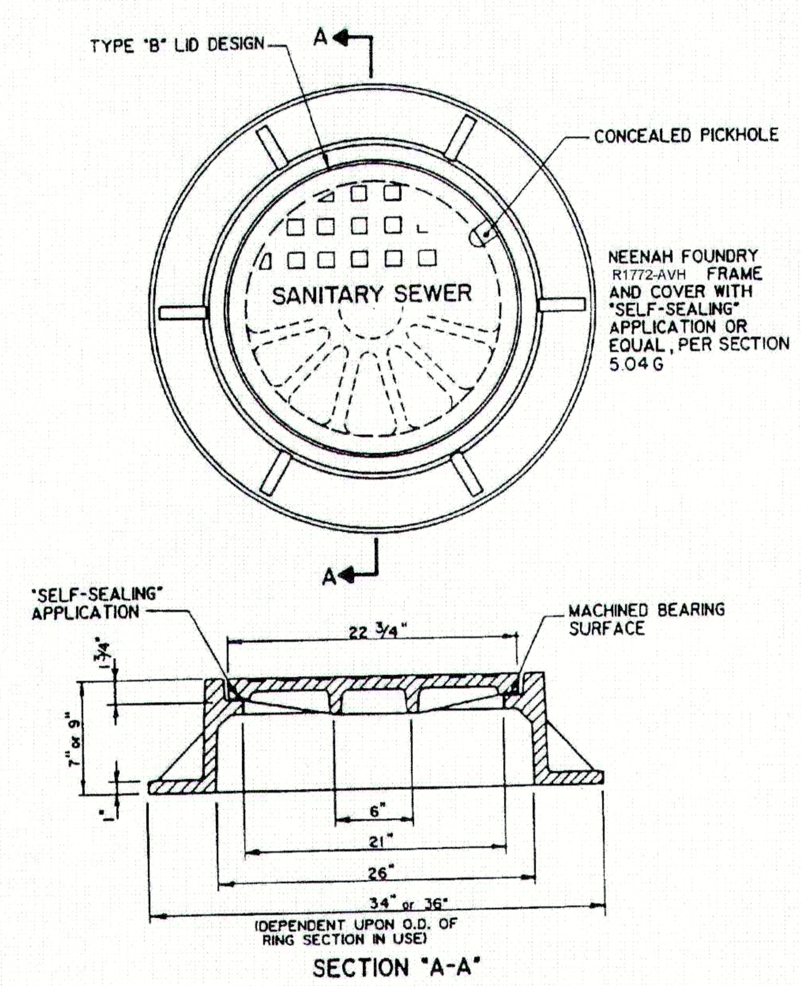
STANDARD MANHOLE FOR PIPE SIZES 8" thru 24" (Straight Thru)

FIGURE 5-I



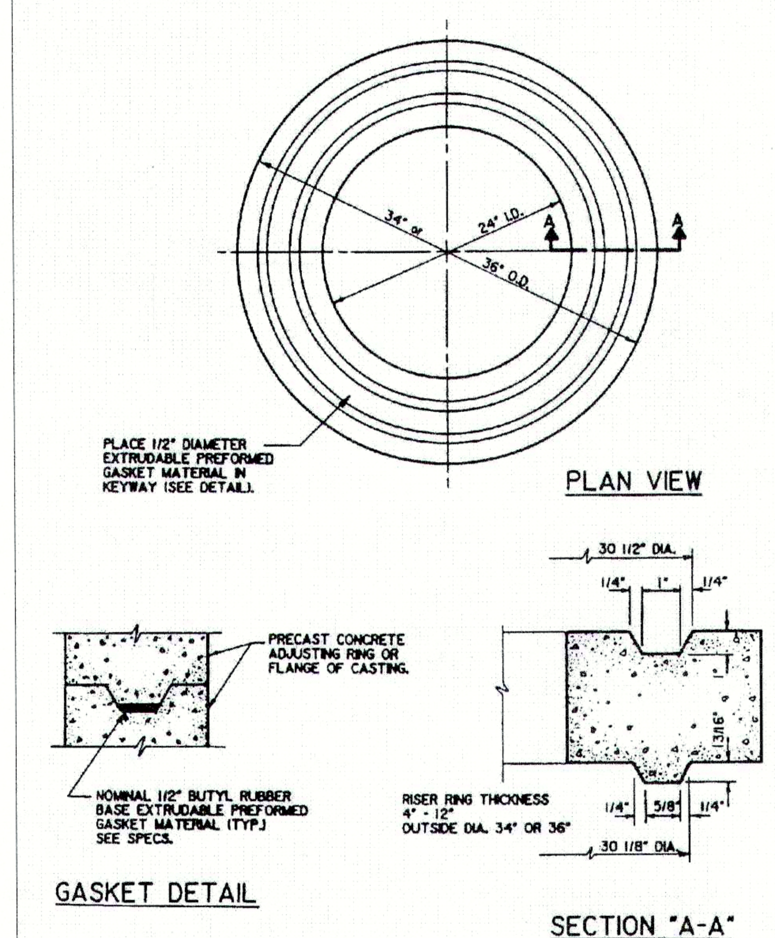
STANDARD MANHOLE BENCHES

FIGURE 5-6



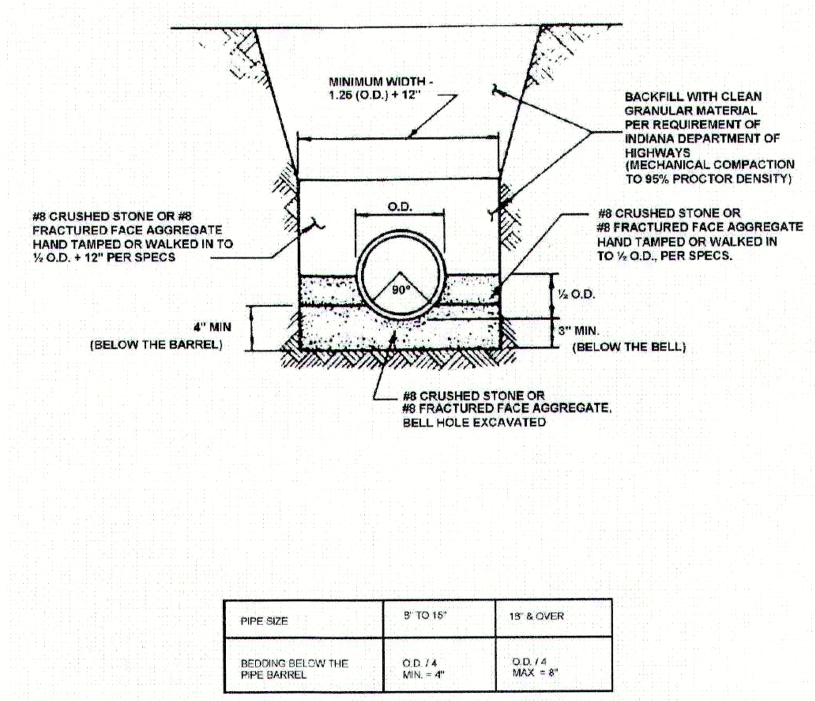
SANITARY SEWER MANHOLE FRAME & COVER - STANDARD MANHOLE

FIGURE 5-7



ADJUSTING RING

FIGURE 5-4A



FLEXIBLE PIPE BEDDING DETAIL PVC & HDPE Pipe

FIGURE 7-I

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SHEET NO. C803		

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PAVEMENT

A. SCOPE OF WORK

1. The work required under this section includes all exterior concrete and bituminous paving and related items necessary to complete the work indicated on drawings and described in the specifications, including but not limited to:

   - All drives, parking areas within contract limits
   - Curbs and gutters
   - Sidewalks, concrete slabs, exterior steps

B. MATERIALS

1. Concrete: Concrete shall be ready-mixed and shall be a mix of proportioned fine and coarse aggregates with Portland cement and water. Minimum cement content shall be 6 bags per cubic yard of concrete and maximum water content shall be 5.5 U.S. gallons per sack of cement, including moisture in the aggregate. Slump for normal weight concrete shall be a maximum of 4 inches and a minimum of 2 inches. The slump of machine placed concrete shall be no less than 1-1/4 inches or more than 3 inches. Standard test ASTM C-143 shall be used to measure slump. Minimum compressive strength of concrete at 28 days shall be 4000 psi. All exterior concrete shall have air entrainment of 5% to 8% by volume per ASTM C-260. Re-tempering of delivered concrete shall not be permitted. Concrete shall be composed of:

   a. Portland cement: conforming to ASTM C-150, Type IA or type IIIA.
   b. Aggregates: conforming to ASTM C-33.
   c. Water: Shall be clear and free from injurious amounts of oils, acids, alkalics organic materials or other deleterious substances.

2. Pre-molded Joint Filler: Shall be non-extruding type meeting ASTM D-544, except that pre-molded joint filler used in concrete walk construction may be either non-extruding or resilient.

3. Bituminous Pavement Materials: All materials proposed for the construction of bituminous pavements shall comply with the Indiana Department of Transportation Standard Specifications, latest revisions.

4. Compacted Aggregate Sub-base:

   - If a certain type of aggregate is specified and labeled per the plans and/or details, than that aggregate shall meet and be in accordance with the INDOT Standard Specifications.
   - If the aggregate is not specified or labeled than it shall be crushed stone or gravel meeting the following requirements. Crushed gravel shall be a minimum of 35% crushed material. Fines shall be limited to a maximum of 8% of the total. Material shall be free from an excess of flat, elongated, thinly laminated soft or disintegrated pieces, and shall be free from fragments coated with dirt. Compacted aggregate shall have a gradation as presented below.

SIEVE SIZE	% PASSING
1-1/2"	100
1"	80-100
3/4"	70-90
1/2"	55-80
#4	35-60
#8	25-50
#30	2-30
#200	5-10

C. APPLICATION

1. Grading: Do any necessary grading in addition to that performed in accordance with EARTHWORK Section, to bring sub-grades, after final compaction, to the required grades and sections for site improvement.

2. Preparation of Sub-grade: Remove spongy and otherwise unsuitable material and replace with stable material. No traffic shall be allowed on prepared sub-grade prior to paving.

3. Compaction of Sub-grade: Refer to Section 207 of the INDOT Standard Specification Manual.

4. Utility Structures: Check for correct elevation of all manhole covers, inlets, valve boxes and similar structures located within areas to be paved and mark, or have made any necessary adjustments to such structures.

5. Placing Concrete:

   a. Sub-grade: Place concrete only on a moist, compacted sub-grade of base free from loose material. No concrete shall be placed on a muddy or frozen subgrade.
   b. Forms: All forms shall be free from warp, tight enough to prevent leakage and substantial enough to maintain their shape and position without springing or settling when concrete is placed. Forms shall be clean and smooth immediately before concreting.
   c. Placing Concrete: Concrete shall be deposited so as to require as little handling as practicable. When concrete is to be placed at an atmospheric temperature of 35 degrees (F) or less, the Indiana Department of Transportation Standard Specifications, latest revision shall be followed.

6. Concrete Curb and Gutter:

   a. Expansion Joints: Shall be 1/2 inch thick pre-moulded at ends of all returns and a maximum spacing of 100 feet.
   b. Contraction Joints: Unless otherwise provided, contraction joints shall be joints spaced 10 feet on center.
   c. Finish: Tamp and spread concrete as soon as placed, and fill any honeycombed places. Finish square corners to 1/4 inch radius or as otherwise required.

7. Concrete Walks and Exterior Steps:

   a. Slopes: Provide 1/4 inch per foot cross slope. Contractor shall make field adjustments in slopes at walk intersections as necessary to provide proper drainage.
   b. Dimensions: Walks and steps shall be one course construction and of widths and thickness shown on the drawings.
   c. Finish: Spread concrete and trowel with a steel trowel to a hard dense surface after surface water has disappeared. Apply medium broom finish and scribe control joints at 6 foot spacing. Provide 1/2 inch expansion joints where sidewalks intersect and at a maximum spacing of 48 feet along walks.

8. Curing Concrete: Except as otherwise specified, cure all concrete by one of the methods described in the Indiana Department of Transportation Standard Specifications, latest revision.

9. Bituminous Pavement: Hot asphalt concrete pavement shall be as specified in the Indiana Department of Transportation Standard Specifications, latest revisions. Paving will not be permitted during unfavorable weather or when the temperature is 40 degrees (F) or below and falling.

10. Compacted Aggregate Sub-base: The thickness shown on the drawings is the minimum thickness of the fully compacted sub-base: Compaction shall be accomplished by rolling with a smooth wheeled roller weighing 8 to 10 tons. Compact to 95% compaction using Standard Testing Procedures. Along curbs, headers and walls and at all places not accessible to the roller, the aggregate material shall be tamped with mechanical tampers.

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EARTHWORK

A. SCOPE OF WORK

1. Extent: The work required under this section consists of all excavating, filling, rough grading and related items necessary to complete the work indicated on the drawings and described in the specifications. The Contractor shall notify in writing the Owners and the Engineer of any changes, errors, or omissions found on the plans or in the field, before work is started or resumed.

   a. In general, the items of work to be performed under this section shall include clearing and grubbing, removal of trees and stumps (where required), protection of trees to remain, stripping and storage of topsoil, fill, compaction and rough grading of entire site as indicated on the drawings.
   b. Excavated material that is suitable may be used for fill. All unsuitable material and all surplus excavated material not required shall be removed from the site by the Contractor. The location of dump and length of haul shall be the Contractor's responsibility.
   c. Provide and place any additional fill material from off the site as may be necessary to produce the grades required. Fill obtained from offsite shall be of kind and quality as specified herein, and as approved by the Engineer & Owner.

2. The Contractor shall accept the site as he finds it and shall remove all trash, rubbish and debris from the site prior to starting excavation.

3. Work not included: The following items of related work are specified and included in other sections of these specifications.

   a. Excavation, grading and backfilling for utility lines.
   b. Storm drainage systems.
   c. Sanitary sewer systems.
   d. Water supply systems.
   e. Drives and paving.

B. BENCHMARKS

1. Maintain carefully all bench marks, monuments and other reference points. If disturbed or destroyed, replace as directed by the Engineer.

C. REMOVAL OF TREES

1. Remove all trees and stumps from area to be occupied by road and surfaced areas. Removal of trees outside these areas shall only be done as noted on drawings or approved by the Owner.

2. All brush, stumps, wood and other refuse from the trees shall be removed from the site or burned with proper permits (where applicable).

D. PROTECTION OF TREES

1. General Protection: the Contractor shall be responsible for the protection of tops, trunks and roots of existing trees on the project site that are to remain. Existing trees subject to construction damage shall be boxed, fenced or otherwise protected before any work is started; do not stockpile within branch spread. Remove interfering branches without injury to trunks and cover scars with tree paint.

E. STRIPPING OF TOPSOIL

1. Remove topsoil to a depth of 6 inches (or as indicated by Owner's Geotechnical Engineer) from the areas to be occupied by roads, walks, buildings, and parking areas. Pile and store topsoil at a location where it will not interfere with construction operations. Top soil shall be reasonably free from subsoil, debris and stones larger than 2 inches.

F. DISPOSITION OF UTILITIES

1. Rules and regulations governing the respective utilities shall be observed in executing all work under this section.

2. It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work. It shall be the contractor's responsibility to contact the owners of the various utilities before work is started. The contractor shall notify in writing the owners or the engineers of any changes, errors or omissions found on these plans, and/or in the field before work is started or resumes.

3. Where active utilities are encountered but not shown on the drawings, the Contractor shall notify the Utility Company, Owner and Engineer prior to proceeding with any work. An appropriate course of action shall be agreed upon by the Utility Company, Owner and Engineer prior to work commencing.

4. Inactive and abandoned utilities encountered in excavating and grading operations shall be reported to the Engineer. They shall be removed, plugged or capped as directed by the Engineer and/or Utility Company.

G. SITE GRADING

1. Grades: Perform all cutting, filling, compacting of fills and rough grading required to bring entire project area to subgrade as shown on the drawings. Undercut open areas 4" for topsoil.

2. Rough grading: the tolerance for paved areas shall not exceed 0.10 feet above established subgrade. All other areas shall not exceed 0.10 feet plus or minus the established grade. Provide roundings at top and bottom of banks and other breaks in grade. All open areas shall be graded a minimum of 0.5% and a maximum of 3H:1V slope.

3. Sub-grade shall be proof rolled with suitable equipment and all spongy and otherwise unsuitable material shall be removed and replaced with suitable material. Contractor shall coordinate the proof roll procedure with the agency having jurisdiction to ensure proper representation is in attendance for the test.

4. Sub-grade for building areas shall be compacted to a minimum compaction of 95% Modified Proctor Density or per the Archetectual/Structural Construction Plans for the corresponding building area. The Archetectual/Structural plans shall govern.

5. Sub-grade for streets and paved areas - See PAVEMENT specifications.

6. See PAVEMENT section for additional information.

7. All fill material shall be formed from soil free of deleterious material. Prior to placement of fill, a sample of the proposed material shall be submitted to the Owner's Geotechnical Engineer for approval. The fill material shall be placed in layers not to exceed 8" in loose thickness and shall be spread and compacted at the proper moisture content.

8. All fill material in areas outside of building and pavement areas shall be compacted lightly with each lift and protected from erosion. Areas of building construction shall have suitable fill material placed and compacted in accordance with the Soils Engineer's report and per sub-section 4 described above in this Section.

9. The Contractor shall verify all earthwork quantities prior to the start of construction. The Contractor shall notify the Owner and Engineer in writing if excess or shortage of earth quantities is encountered and verify requirements for stockpiling, removal or importing earth. Owner and Engineer hereby reserve the right to allow minor adjustments in proposed grades to reduce an earth quantity disparity.

H. SEEDING PREPARATION

1. Contractor shall resolve any surface or subsurface drainage problems and construct permanent erosion control structures.

2. Remove all rocks, roots or other materials that may interfere with seedbed preparation.

3. Perform the major filling, shaping and smoothing of gullied or severely eroded areas.

4. Have soil tested to check pH and fertility levels. Apply lime at rate specified in seeding specifications on the plans.

5. Work all lime and fertilizer into the soil to a depth of 2-3 inches with a small disk, harrow or rake operated across the slope as much as possible.

6. Firm the soil bed where possible. Do not over pack the soil to ensure compacting does not restrict water and root penetration into the soil.

STORM SEWER SYSTEMS

A. SCOPE OF WORK

1. The work under this section includes all storm sewers, storm manholes, storm water inlets, and related items, including excavating and backfilling, necessary to complete the work shown on the drawings.
2. All work under this section shall be in accordance with the Fisher's Stormwater Standards and Specifications unless specifically noted otherwise. In the event requirements provided herein conflict with the aforementioned Standards, the more stringent provisions shall be used.

B. MATERIALS

1. Storm Sewers:
   a. Reinforced concrete sewer pipe shall conform to ASTM C-76 class 3 (unless otherwise noted) latest revision with joints and gaskets conforming to ASTM C-443 latest revision.
   b. High Density Polyethylene Pipe - HDPE
      - Pipe shall meet Type S pipe under AASHTO M294 for sizes 12 inches to 36 inches, and AASHTO MP6 for 42 inches and 48 inches.
      - Flexible gasket joints shall be compression type so that when assembled, the gasket inside the machined groove on the pipe spigot will be compressed radially in the pipe bell to form a soiltight seal for all soil types and groundwater conditions.
      - Gaskets shalll conform to all requirements of ASTM F-447

2. Manholes:

   a. Precast reinforced concrete manhole sections shall conform to ASTM C-478 latest revision.
   b. Castings shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage distortion or other defects. They shall be smooth and well-cleaned by shotblasting or by some other approved method. They shall be coated with asphalt paint which shall result in a smooth coating, tough and tenacious when cold, not tacky or brittle. They shall be gray iron meeting ASTM A-48 latest revision.
   c. Joints - manhole sections shall be jointed with rubber type gaskets. The rubber type gaskets shall meet ASTM C-443 latest revision.

3. Sub-surface/Underdrains:

   a. Perforated plastic pipe sub drains shall conform to ASTM D-3034 SDR 35, ASTM D-2729, or ASTM F-405.

4. PE Pipe and Fittings

   d. Corrugated PE Drainage Pipe and Fittings NPS 12 (DN 250) and smaller: AASHTO M 252M, for coupling joints.
      - Silt-tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with tube and fittings.
      - Soil-tight Couplings: AASHTO M 252M, corrugated, matching tube and fittings.
      - Type S, double walled with smooth waterway.

   b. Corrugated PE Pipe and Fittings NPS 12 to NPS 48 (DN 250 to DN 1200): AASHTO M 294M, Type S, with smooth waterway for coupling joints.
      - Silt-tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings
      - Soil-tight Couplings: AASHTO M 294M, corrugated, matching pipe and fittings.

5. Manhole Steps

   a. Manhole steps shall be polypropylene, polypropylene coated steel reinforcing, or an approved non-corrosive fiberglass material. the copolymer polypropylene shall meet the requirements of ASTM D-4101 reinforced with deformed $\frac{3}{8}$ inch minimum diameter reinforcing steel conforming to the requirements of ASTM 1-615, grade 60.

C. APPLICATION

1. Permits and Codes: This section is intended to provide the Contractor with a basis for bidding purposes and general information. The Contractor shall be responsible for ensuring their bids, materials and workmanship are in accordance with local jurisdictional requirements. Contractor shall furnish all bonds necessary to get permits for cuts and connections to existing sewers.

2. Local Standards: The term "Local Standards" as used herein means the standards of design and construction of the respective municipal department or utility company.

3. Existing Improvements: The Contractor shall maintain in operating condition all active utilities, sewers and other drains encountered in the sewer installation. Contractor shall repair to the satisfaction of the Owner/Utility Company any damage to existing active improvements at no additional cost to Owner.

4. Workmanship: Shall conform to all local, state and national codes and to be approved by all local and state agencies having jurisdiction.

5. Trenching: Lay all pipe in open trenches, except when the local authority gives written permission for boring/tunneling. Open the trench sufficiently ahead of pipe-laying to reveal any obstructions. The minimum width of the trench shall be the outside pipe diameter multiplied by 1.25, plus 12 inches (min.). Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Keep trenches free from water while construction is in progress. Under no circumstances shall contruction activities commence in standing water. Conduct the discharge from trench dewatering to appropriate drains or natural drainage channels.

6. Special Supports: Whenever, in the opinion of the Engineer, the soil at or below the pipe grade is unsuitable for supporting sewers and appurtenances specified in this section, such special support, in addition to those shown or specified, shall be provided as the Engineer may direct, and the contract will be adjusted.

7. Bedding: Bedding material shall be compacted No.8 crushed stone or No.8 fractured face aggregate meeting INDOT Standard Specifications and shall be placed in the trench bottom such that after the pipe has been placed to grade and line, there remains a minimum depth of material below the outside pipe wall. Refer to the tables below.

   a. HDPE / Flexible Pipe
   No.8 crushed stone or No.8 fractured face aggregate meeting INDOT specifications shall be placed around the sides of the pipe up to the sides of the pipe to the springline (1/2 the Outside Diameter). This material shall be shovel sliced or otherwise carefully placed and "walked" or hand tamped in to ensure compaction of the haunch area and complete filling of all voids. From the springline to twelve (12) inches above the top of the pipe, bedding shall be added in six (6) inchlifts "walked" in for compaction. Backfilling of the remainder of the trench shall be as specified in the next Section.

   b. Reinforced Concrete Pipe (RCP)
   No.8 crushed stone or No.8 fractured face aggregate meeting INDOT specifications shall be placed around the sides of the pipe up to the sides of the pipe to the springline (1/2 the Outside Diameter). This material shall be shovel sliced or otherwise carefully placed and "walked" or hand tamped in to ensure compaction of the haunch area and complete filling of all voids. Backfilling of the remainder of the trench shall be as specified in the next Section.

8. Backfill: The following materials shall be used to backfill the trenches in accordance with and in the manner indicated by the requirements specified herein:

   a. Granular Backfill: Granular backfill material shall be B Borrow or Structural Backfill in accordance with Section 211 of INDOT Standard Specifications. Backfill under and within 5' of walks, parking areas, driveways, and streets shall be granular material only.

   b. Non-Granular Backfill: In areas not requiring granular backfill material, the trench shall be carefully backfilled with clean fill material free of rocks larger than 6-inches in diameter, frozen lumps of soil, wood or other extraneous material.

STORM SEWER SYSTEMS (CONT.)

9. Compaction: Granular Backfilll compaction shall be in accordance with Section 211 of the INDOT Standard Specifications. Bedding and haunching shall be compacted to 95% standard proctor density for the entire depth of excavation.

10. Manhole Inverts: Construct manhole flow channels of concrete, smoothly finished and if semi-circular section conforming to the inside diameter of the connecting sewers. Make changes in size or grade gradually and changes in direction by true curves.

11. Utilities: It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work. It shall also, be the contractors responsibility to contact the owners of the various utilities before work is started. The contractor shall notify in writing the owners or the engineer of any changes, errors or omissions found on these plans or in the field before work is started or resumed.

SANITARY SEWER SYSTEMS

Sanitary construction procedures, materials, testing, details and specifications shall be in accordance with the Fall Creek Regional Waste District Standards (Latest Edition). Please refer to these standards, specifications, and details for all sanitary construction.

WATER LINE AND APPURTENANCES

Pendleton Water Utility Standard Practices and Engineering Requirements for the Installation of Water Mains, Services Lines, Meters, and Appurtenances (Latest Edition) to be used with these plans for all water line construction.

DEWATERING AND CONTROL OF SURFACE WATER

Whenever groundwater is encountered, the CONTRACTOR shall make every practical effort to secure a dry trench bottom before laying pipe. The CONTRACTOR shall provide, install and operate sufficient trenches, sumps, pumps, hose, piping, well points, etc. to depress and maintain the groundwater level below the base of the excavation. If the CONTRACTOR is unable to remove the standing water in the trench, the CONTRACTOR shall over-excavate the proposed bottom grade of the sewer bedding, and place not less than three (3) inches of No. 8 crushed stone in the over-excavated area.

The CONTRACTOR shall keep the site free of surface water at all times and shall install drainage ditches, dikes, pumps, and perform other work necessary to divert or remove rainfall and other accumulation of surface water from excavations. The diversion and removal of surface and/or groundwater shall be performed in a manner which will prevent the accumulation of water within the construction area. UNDER NO CIRCUMSTANCES SHALL SURFACE WATER AND/OR GROUNDWATER BE DISCHARGED TO, DISPOSED OF OR ALLOWED TO FLOW INTO AN ACTIVE SANITARY SEWER SYSTEM.

1. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE PENDLETON CONSTRUCTION STANDARDS AND SPECIFICATIONS (STANDARDS) UNLESS SPECIFICALLY NOTED OTHERWISE.

2. INDIANA STATE DEPARTMENT OF TRANSPORTATION (INDOT) STANDARD SPECIFICATIONS, LATEST EDITION, TO BE USED WITH THESE PLANS. (SUPPLEMENTAL SPECIFICATIONS)

3. IN THE EVENT THESE PLANS OR SUPPLEMENTAL SPECIFICATIONS ARE IN CONFLICT WITH SAID STANDARDS, THE MORE STRINGENT REQUIREMENTS SHALL BE USED.

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REVISIONS AND ISSUES	DATE	BY

CONSTRUCTION PLANS FOR:
PENDLETON PLACE APTS., PHASE III
PENDLETON, FALL CREEK, MADISON, IN 46064 S19, T18N, R7E
R&B ARCHITECTS
3202 N. MERIDIAN STREET, INDIANAPOLIS, IN 46202
SPECIFICATIONS

PLAN DATE: 7/5/2016		
DESIGN: AF	CHECK: JF	DRAWN: KG
PROJECT NO. 1601009		
SHEET NO. C804		