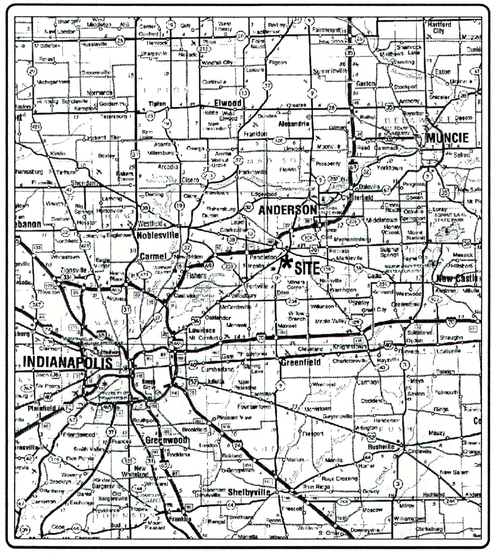
Asbuilt Plans

Huntzinger Farms PUD

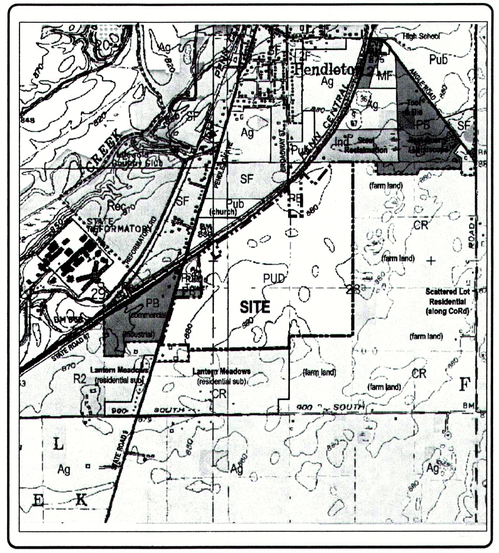
Phase I

Part of the Northwest & Southwest 1/4s, Section 28, Southeast & Northeast 1/4s,
Section 29, Township 18 North, Range 7 East

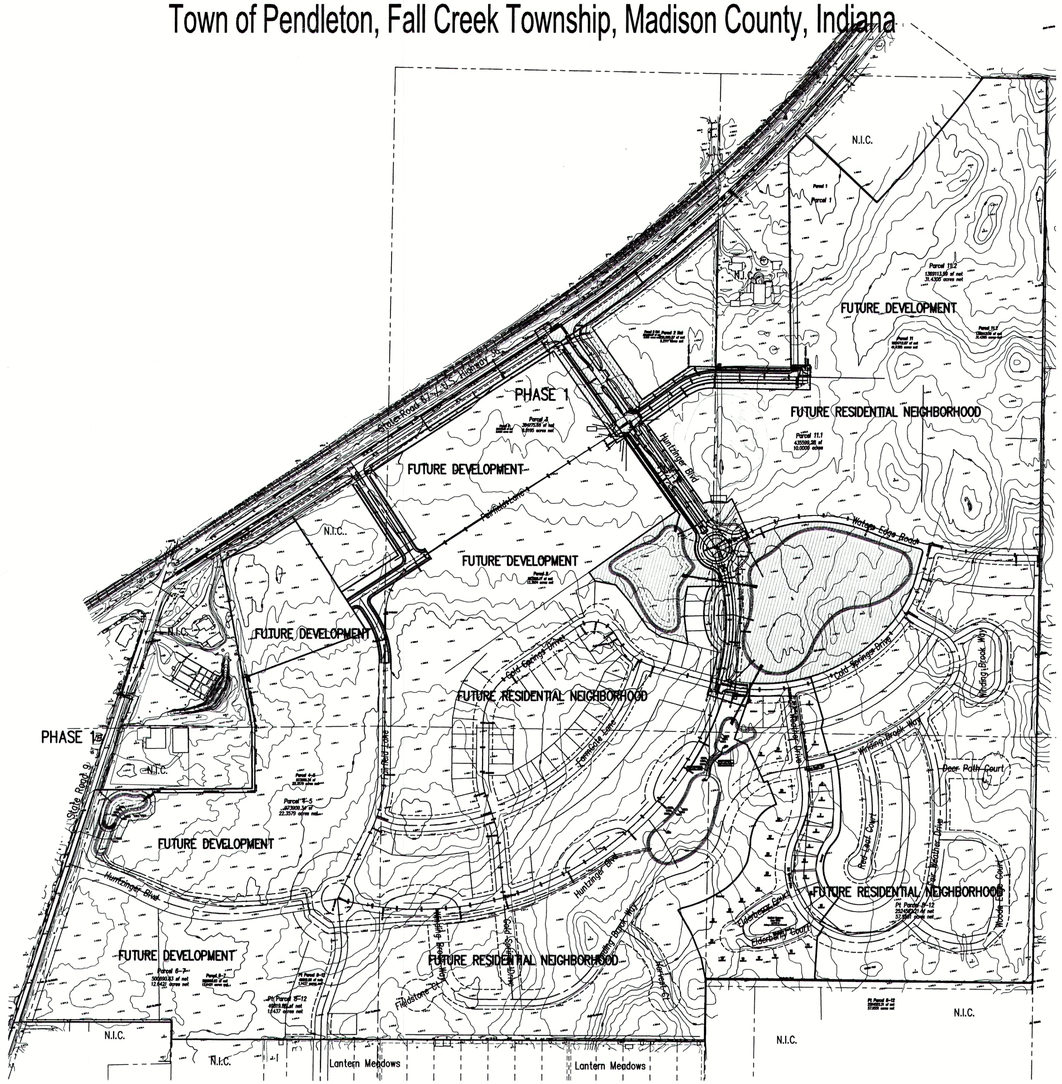
Town of Pendleton, Fall Creek Township, Madison County, Indiana



Location Map
State of Indiana Highway Map



Area Map
USGS Quadrangle Maps:
Anderson North / Gilman / Middletown / Anderson South



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4	~~Grading Plan: Detention Pond #2 and 3 / Storm Series 700~~
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7	~~Street Plan-Profile; Line "HBlvd"~~
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	Waterline Plan - Huntzinger Blvd / Contractor notes

REVISIONS

Sheet #	Date	Description
2	3/28/04	Revised per comments from ToP per check-off list dated 3/22/04.
11-13	4/1/04	Corrected str numbering.
11	4/12/04	Revised to adjust pipe inverts Str #103-106 per client.
18-21a	4/12/04	Revised per comments from MadCo SWCD per email received on 4/11/04.
9, 17	5/21/04	Revised per comments from FCRWD/Triad per markup plans dated 4/16/04.
1-27	6/30/04	Revised to add Fairfield Lane street, storm, sanitary per client.
2, 12, 21	7/18/04	Revised to correct jurisdiction, add 4" suction line of LS.

NOTES:

1. The construction standards for the Town of Pendleton (for streets, storm sewers and waterline) and Fall Creek Regional Waste District (for sanitary sewers) shall be used for all parts of this project.

Project Data

Dedicated Street Lengths	
Huntzinger Blvd (Line "HBlvd"):	1,728.25 lft
Waters Edge Road (Line "WERd"):	115.30 lft
Cold Springs Drive (Line "CSDr"):	95.78 lft
Fairfield Lane (Line "FLn"):	857.80 lft
Broadway Street (Line "BSt"):	41.14 lft
Total:	2,838.27 lft

prepared for: **Pendleton Land Company, LLC**
9449 Priority Way West Drive
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prepared by: Pendleton Consulting
P.O.Box 67 Pendleton, Indiana 46064
Phone (765) 778-4540 Fax 765-778-3571 email pendcnslt@netdirect.net

certified by: Stephen E. Bourquein
Indiana Registered Professional Land Surveyor #S0441

STEPHEN E. BOURQUEIN REGISTERED No. S0441 STATE OF INDIANA LAND SURVEYOR

File name: d:\data\bradford\huntzinger\phase1\cd sht 01 title.dwg

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

MH# 3 9+64.38 'SSA'
40.00'Lt; 7+90.91 'St1'

MH# 2 5+68.48 'SSA'=
71.72'Lt; 0+64.55 'St3'

MH# 1 2+61.16 'SSA'=
40.00'Lt; 3+50.85 'St3'

MH# 4 13+36.13 'SSA'=
40.00'Lt; 4+19.16 'St1'

MH# 5 0+00.00 'SSA'=
0+00.00 'SSB'
36.85'Lt; 10+95.99 'St5'
(See Detail on Sheet #xx)

MH# 5 1+00.57 'SSB'=
31.50'Rt; 6+02.35 'St3'

POT 11+03.25 'St1'=
POT 0+00.00 'St3'=
POT 13+61.36 'St4'

PDC 1+65.37 'St3'
PCC 3+96.15 'St3'

PDC 5+67.46 'St3'=
PT 11+60.78 'St5'

POT 7+60.62 'St1'=
CL Approach 2

POT 4+83.00 'St1'=
PCC 24+91.01 'St2'

Stub end for future extension

Detention Pond #1

Detention Pond #2

Curve #1

Curve #2

CL Line 'St1'

Line "SSA"

MH# 4 T.Ctg Elev. 878.66
48" dia standard manhole
Neenah R-1712-B-SP

MH# 3 T.Ctg Elev. 873.35
48" dia standard manhole
Neenah R-1712-B-SP

MH# 2 T.Ctg Elev. 879.00
48" dia standard manhole
Neenah R-1712-B-SP

MH# 1 T.Ctg Elev. 878.00
48" dia standard manhole
Neenah R-1712-B-SP

MH# 5 T.Ctg Elev. 878.50
48" dia standard manhole
Neenah R-1712-B-SP
Use blank manhole bottom (no benchwalls)

MH# L.S. T.Ctg Elev. 878.50
Lift Station
Special Casting
See Detail Sheet #xx

finish profile grade

existing profile grade

Invr. 858.34
8" in from east
Stub 26 lft 8" @ 0.45%
PVC ASTM D-3034 / SDR 35

Invr. 858.44
8" in from west
Stub 91 lft 8" @ 0.45%
PVC ASTM D-3034 / SDR 35

Invr. 858.44
8" in from east
Stub 26 lft 8" @ 0.45%
PVC ASTM D-3034 / SDR 35

Invr. 857.51
8" in from east
Stub 26 lft 8" @ 0.45%
PVC ASTM D-3034 / SDR 35

Invr. 857.51
8" in from west
Stub 91 lft 8" @ 0.45%
PVC ASTM D-3034 / SDR 35

Line "SSB"
Stub 39 lft 12" @ 0.25%
PVC ASTM D-3034 / SDR 35

372 lft 12" @ 0.25%
PVC ASTM D-3034 / SDR 35

396 lft 12" @ 0.25%
PVC ASTM D-3034 / SDR 35

307 lft 12" @ 0.25%
PVC ASTM D-3034 / SDR 35

262 lft 12" @ 0.25%
PVC ASTM D-3034 / SDR 35

100 lft 12" @ 0.25%
PVC ASTM D-3034 / SDR 35

Invr. 872.00
48" storm sewer

Invr. 873.77
12" storm sewer

Invr. 873.43
12" storm sewer

Invr. 873.15
24" storm sewer

CL 8" waterline

CL 12" waterline

Invr. 856.42
Invr. 856.42

Invr. 855.65
Invr. 855.65

Invr. 855.00
Invr. 855.00

Invr. 857.41
Invr. 857.41

13+50 13+00 12+50 12+00 11+50 11+00 10+50 10+00 9+50 9+00 8+50 8+00 7+50 7+00 6+50 6+00 5+50 5+00 4+50 4+00 3+50 3+00 2+50 2+00 1+50 1+00 0+50 0+00

885 880 875 870 865 860 855 850

Preliminary

North

Scale: 1"=50'

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Date 1.30.04

Date	Revision
3/4/04	Revised per client direction on alignments.

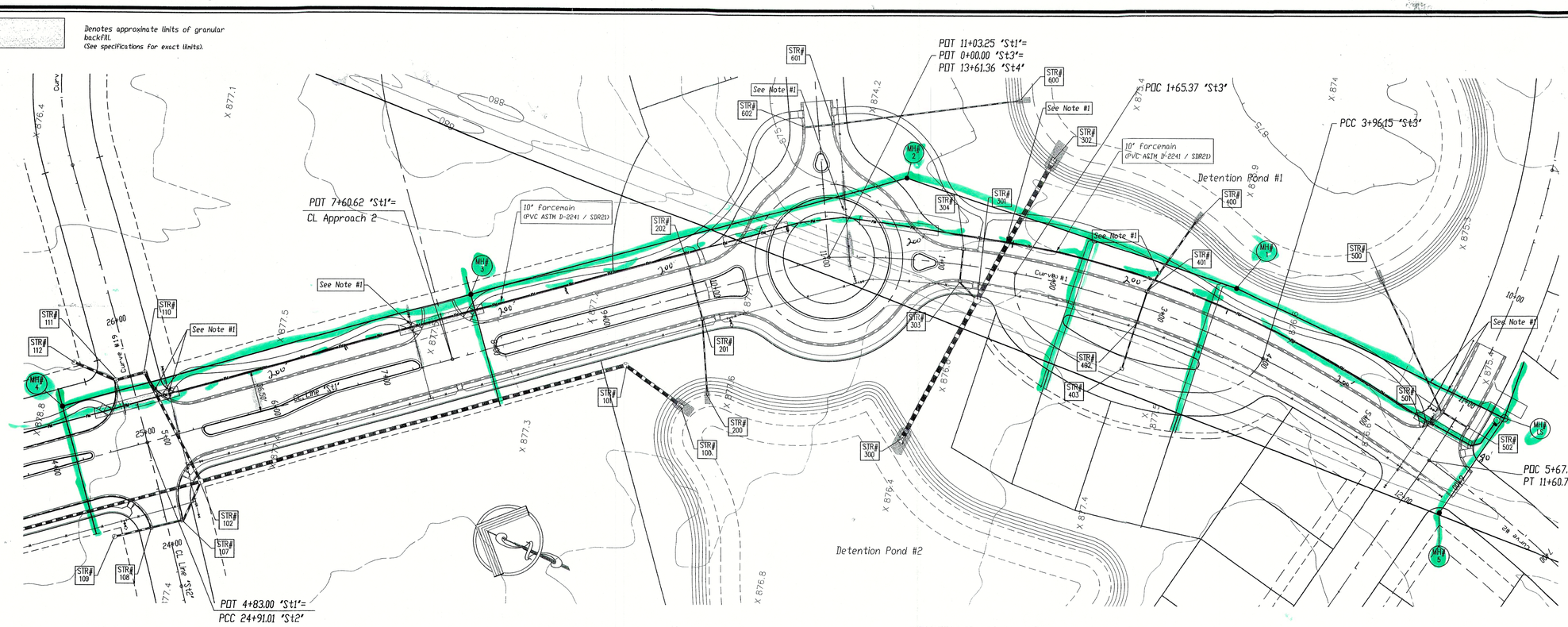
Project: Huntzinger Farms
Phase I
Pendleton, Madison County, Indiana

Sheet Title: Sanitary Sewer Plan-Profile
Line "SSA"

04-10-02

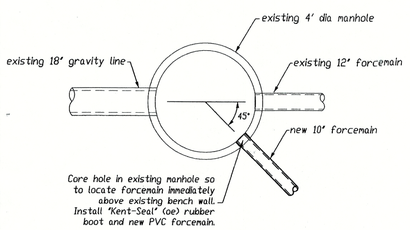
Sheet No. 9 of 21 Sheet:

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

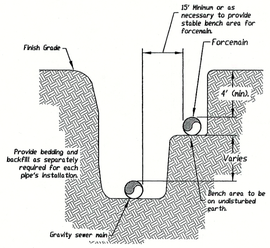


NOTES:

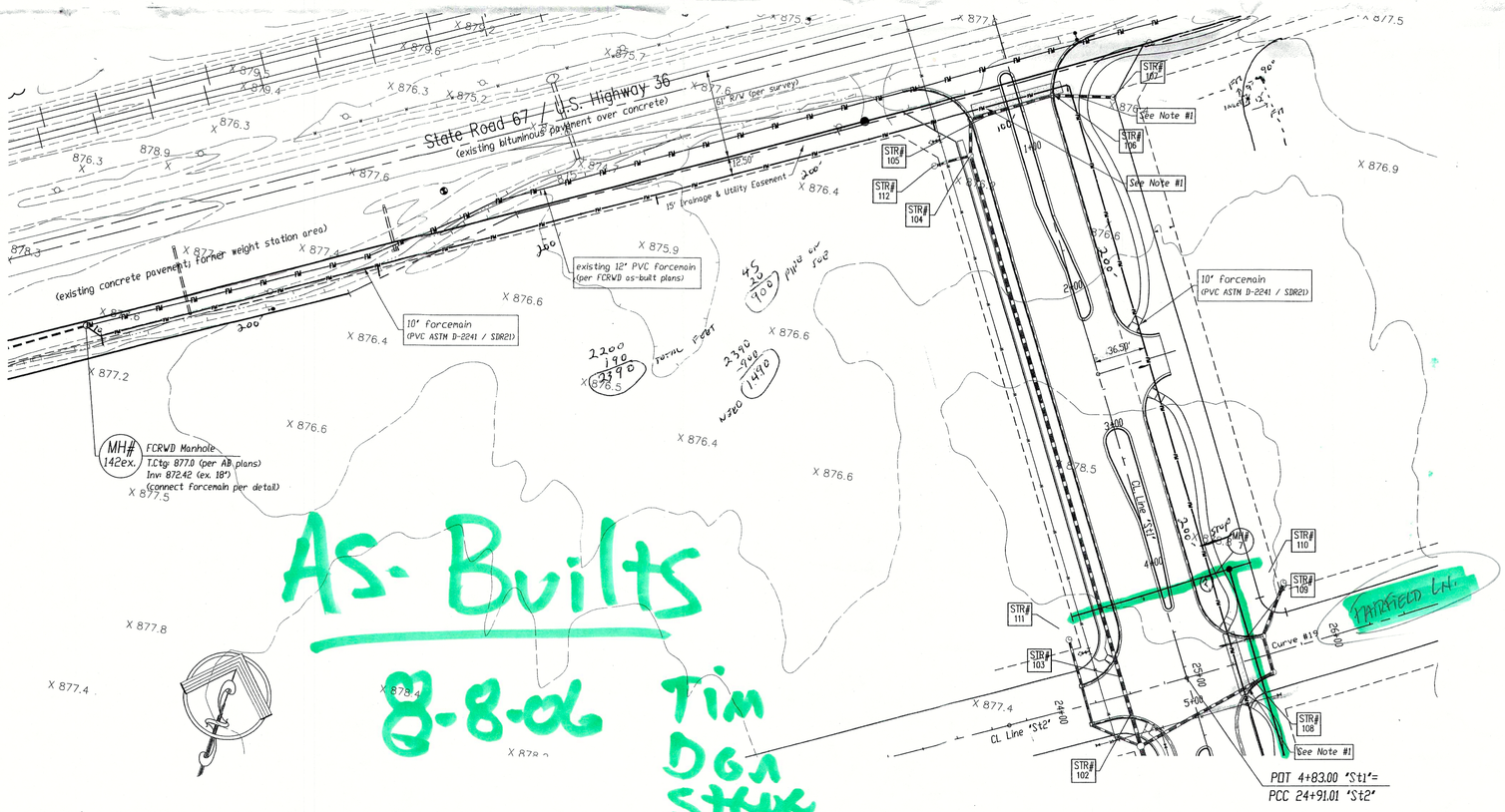
1. Maintain a minimum of 18" of vertical separation between the forcemain and the waterlines and storm sewers.



Forcemain Connection Detail



JOINT GRAVITY - FORCEMAIN INSTALLATION



As-Builts
8-8-06
Tim
DGA
Steve

North

Scale: 1"=50'

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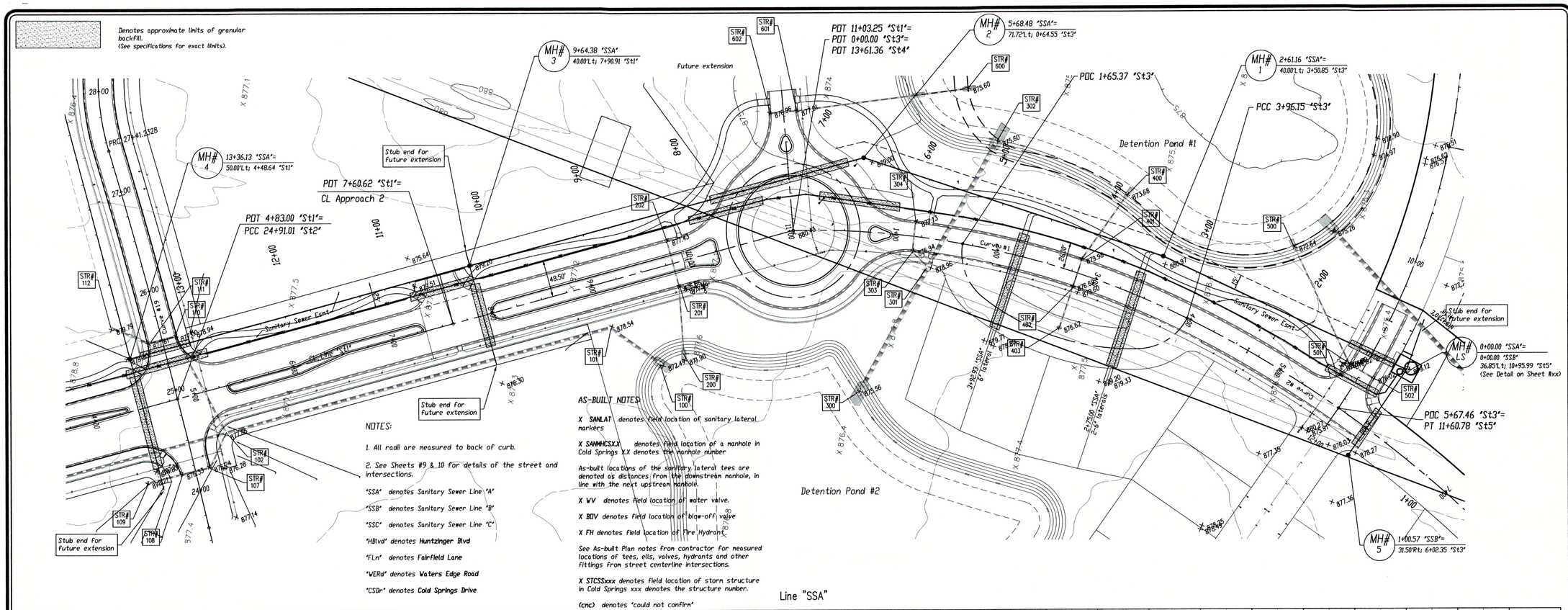
Date 1.30.04

Date	Revision
3/4/04	Revised per client direction on alignments.

Project: Huntzinger Farms Phase I
Pendleton, Madison County, Indiana

Sheet Title: Sanitary Sewer Forcemain

Sheet No. 10 of 21 Sheets



As-built Plans

North

Scale: 1"=50'

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Date 1.30.04

Date	Revision
3/4/04	Revised per client direction on alignments.
5/21/04	Revised per comments from FCRWD/Trind per markup plans dated 4/16/04.
6/29/04	Revised to add segment of Fairfield Road to plans per client.

Project: **Huntzinger Farms**
Phase I
Pendleton, Madison County, Indiana

Sheet Title: **Sanitary Sewer Plan-Profile**
Line "SSA"

REGISTERED STEPHEN E. BOROUGH No. S0441 STATE OF INDIANA LAND SURVEYOR

Sheet No. 11 of 27 Sheets

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

NOTES:

1. Maintain a minimum of 18" of vertical separation per IDEM requirements.

2. Unless otherwise noted all noted casting elevations are approximately 0.33' (4") above planned finish grade.

3. The noted length for pipe segments are rounded lengths between centerline stations of manholes.

"SSA" denotes Sanitary Sewer Line "A"

"SSC" denotes Sanitary Sewer Line "B"

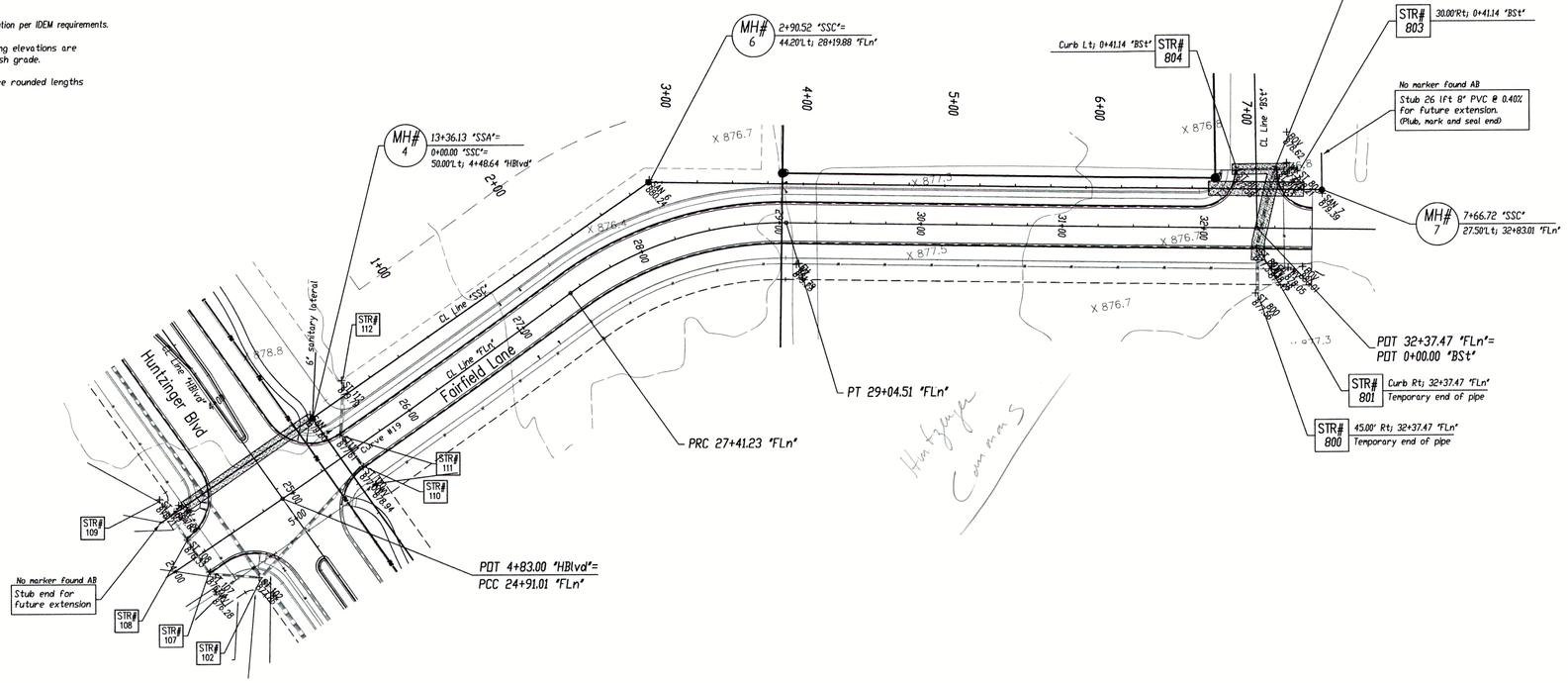
"SSC" denotes Sanitary Sewer Line "C"

"HBlvd" denotes Huntzinger Blvd

"FLn" denotes Fairfield Lane

"WERd" denotes Waters Edge Road

"CSDr" denotes Cold Springs Drive



AS-BUILT NOTES:

X SANLAT denotes field location of sanitary lateral markers

X SANMHCSX.X denotes field location of a manhole in Cold Springs X.X denotes the manhole number

As-built locations of the sanitary lateral tees are denoted as distances from the downstream manhole, in line with the next upstream manhole.

X WV denotes field location of water valve.

X BOV denotes field location of blow-off valve

X FH denotes field location of Fire Hydrant

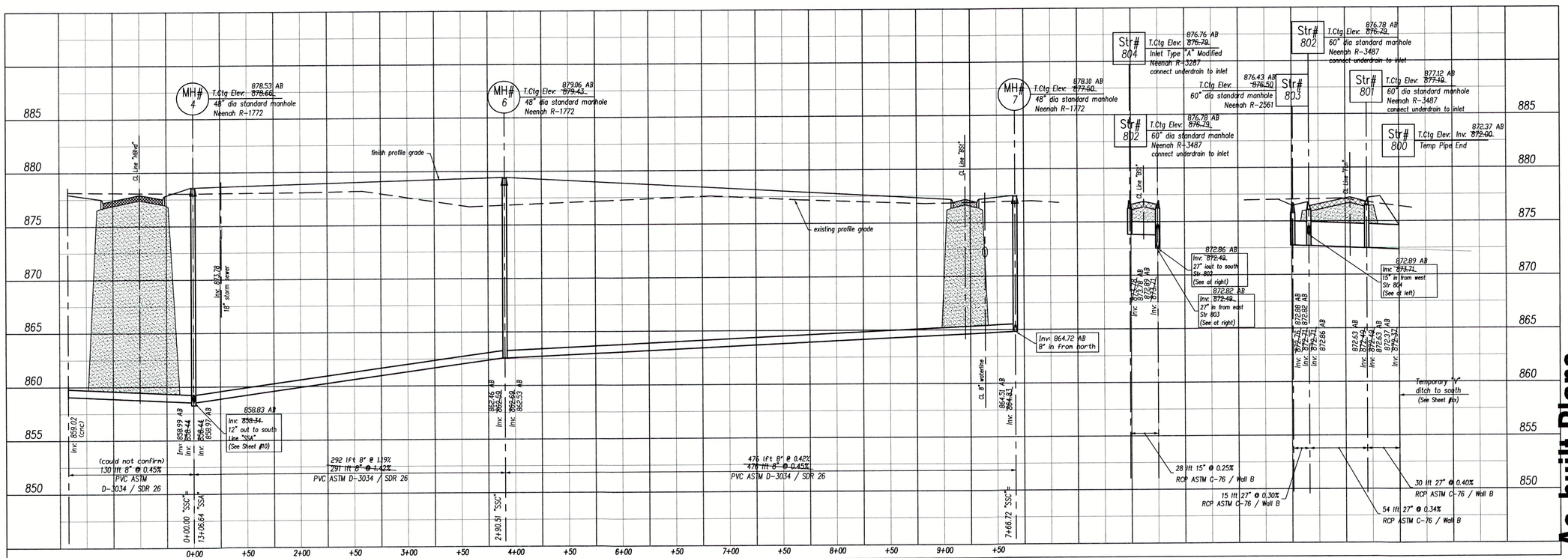
See As-built Plan notes from contractor for measured locations of tees, ells, valves, hydrants and other fittings from street centerline intersections.

X STCSSxxx denotes field location of storm structure in Cold Springs xxx denotes the structure number.

(cnc) denotes 'could not confirm'

Line "SSC"

Structure Series 800



As-built Plans

North

Scale: 1"=50'

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Date 1.30.04

Date	Revision
3/4/04	Revised per client direction on alignments.
5/21/04	Revised per comments from FCRWD/Trad per review comments dated 4/16/04.
6/29/04	Revised to add segment of Fairfield Road to plans per client.

Project
Huntzinger Farms
Phase I
Pendleton, Madison County, Indiana

Sheet Title
Sanitary / Storm Plan-Profile
Line "SSC" / Structure Series 800

REGISTERED LAND SURVEYOR
STEPHEN E. BURQUEN
No. S0441
STATE OF INDIANA

Sheet No.
13
of 27 Sheets

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

NOTES:

1. Maintain a minimum of 18" of vertical separation per IDEM requirements.

2. Unless otherwise noted all noted curb casting elevations are to top of curb.

3. The noted length for pipe segments with end sections include the concrete end section.

'SSA' denotes Sanitary Sewer Line 'A'

'SSB' denotes Sanitary Sewer Line 'B'

'SSC' denotes Sanitary Sewer Line 'C'

'HBlvd' denotes Huntzinger Blvd

'FLn' denotes Fairfield Lane

'WERd' denotes Waters Edge Road

'CSDr' denotes Cold Springs Drive

AS-BUILT NOTES:

X SANLAT denotes field location of sanitary lateral markers

X SANMHCSX.X denotes field location of a manhole in Cold Springs X.X denotes the manhole number

As-built locations of the sanitary lateral tees are denoted as distances from the downstream manhole, in line with the next upstream manhole.

X WV denotes field location of water valve.

X BOV denotes field location of blow-off valve

X FH denotes field location of Fire Hydrant

See As-built Plan notes from contractor for measured locations of tees, ells, valves, hydrants and other fittings from street centerline intersections.

X STCSSxxx denotes field location of storm structure in Cold Springs xxx denotes the structure number.

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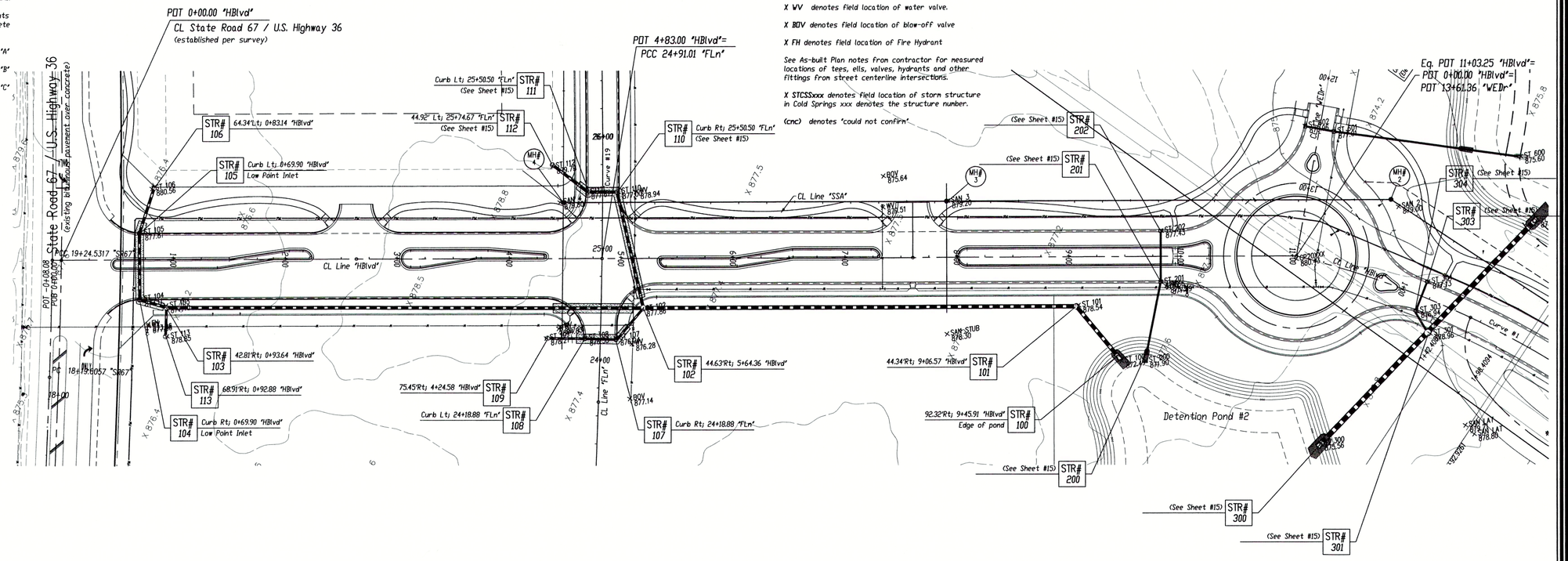

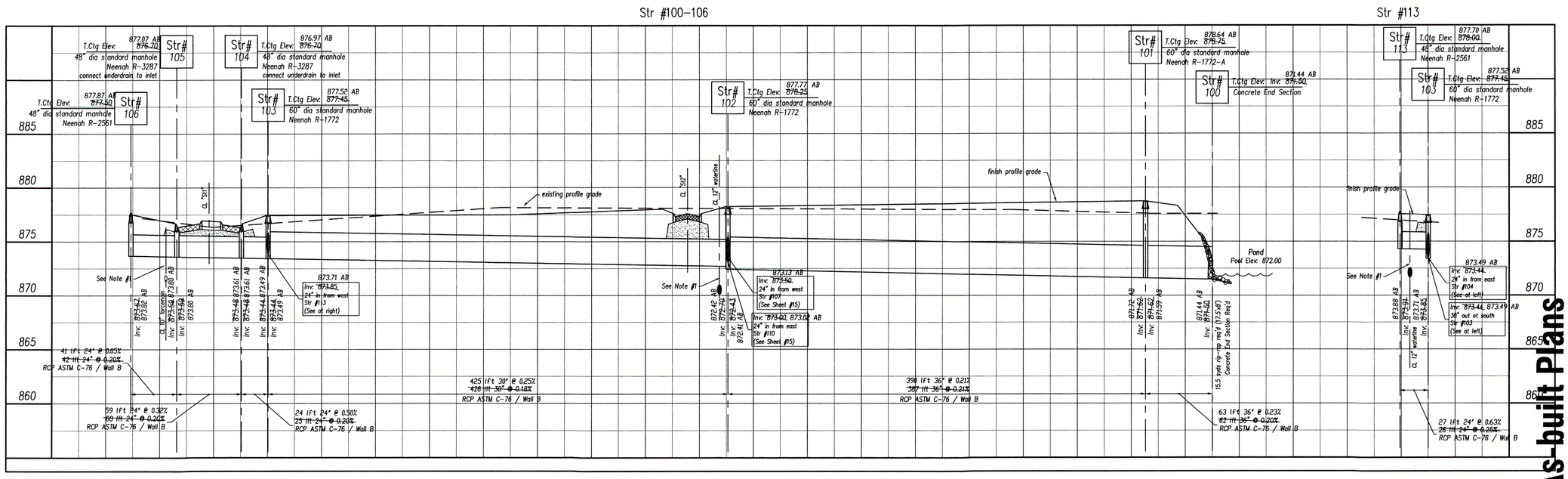

As-built Plans

North

Scale: 1"=50'

Pendleton Consulting
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Date	Revision
3/4/04	Revised per client direction on alignments.
4/1/04	Corrected str numbering.
4/13/04	Adjust inverts of Strs #103-106 for clearance per client.
6/29/04	Revised to add segment of Fairfield Road to plans per client.

Date 1.30.04

Project: Huntzinger Farms Phase I, Pendleton, Madison County, Indiana

Sheet Title: Storm Sewer Plan-Profile, Storm Series 100

STEPHEN E. BORQUEIN REGISTERED No. S0441 STATE OF INDIANA PROFESSIONAL LAND SURVEYOR

Sheet No. 14 of 27 Sheets

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

AS-BUILT NOTES:

X SANLAT denotes field location of sanitary lateral markers

X SANMHCSX.X denotes field location of a manhole in Cold Springs X.X denotes the manhole number

As-built locations of the sanitary lateral tees are denoted as distances from the downstream manhole, in line with the next upstream manhole.

X WV denotes field location of water valve.

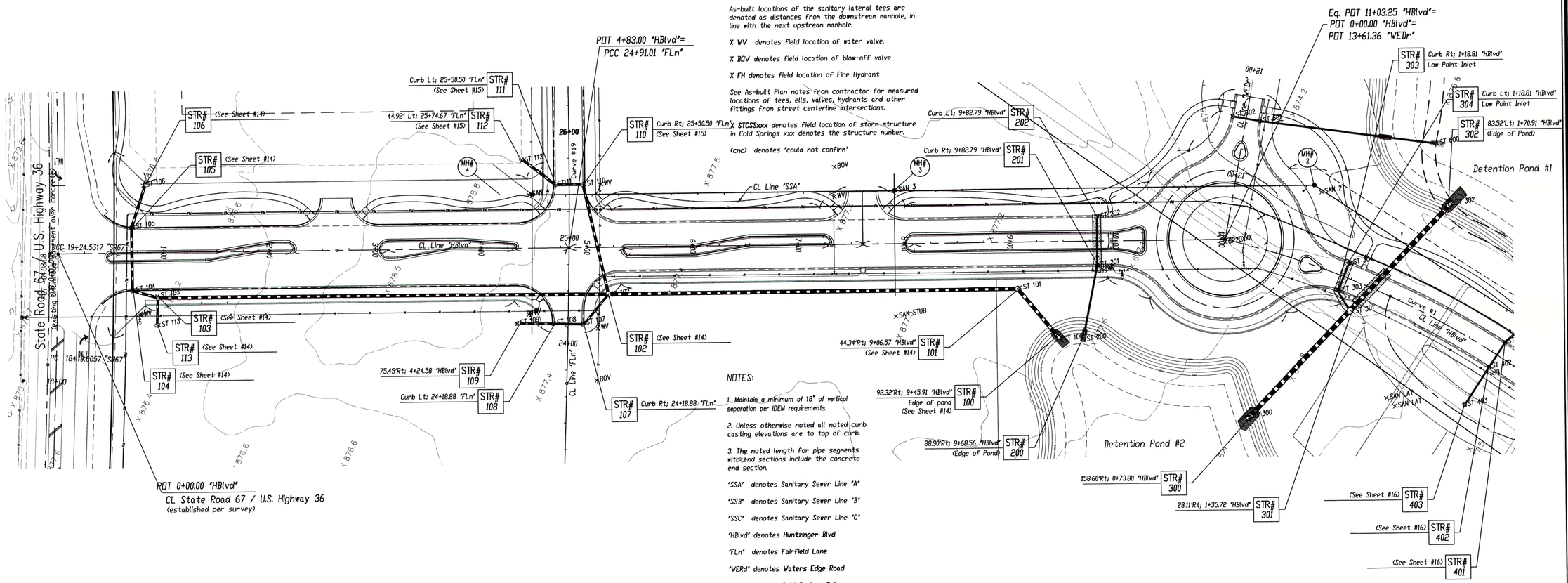
X BOV denotes field location of blow-off valve

X FH denotes field location of Fire Hydrant

See As-built Plan notes from contractor for measured locations of tees, ells, valves, hydrants and other fittings from street centerline intersections.

X STCSSxxx denotes field location of storm structure in Cold Springs xxx denotes the structure number.

(cnc) denotes 'could not confirn'



NOTES:

1. Maintain a minimum of 18" of vertical separation per IDEM requirements.

2. Unless otherwise noted all noted curb casting elevations are to top of curb.

3. The noted length for pipe segments with end sections include the concrete end section.

'SSA' denotes Sanitary Sewer Line 'A'

'SSB' denotes Sanitary Sewer Line 'B'

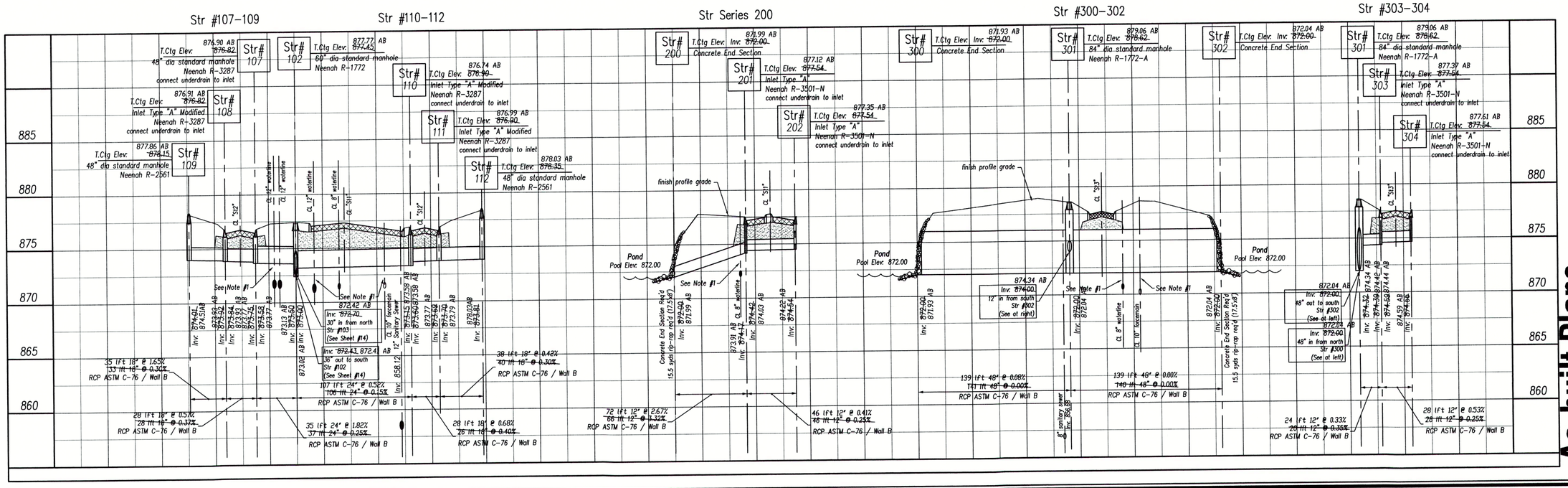
'SSC' denotes Sanitary Sewer Line 'C'

'HBlvd' denotes Huntzinger Blvd

'FLn' denotes Fairfield Lane

'WERd' denotes Waters Edge Road

'CSDr' denotes Cold Springs Drive



As-built Plans

North

Scale: 1"=50'

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Date	Revision
1.30.04	
3/4/04	Revised per client direction on alignments.
4/1/04	Corrected str numbering.
6/29/04	Revised to add segment of Fairfield Road to plans per client.

Project: Huntzinger Farms Phase I, Pendleton, Madison County, Indiana

Sheet Title: Storm Sewer Plan-Profile, Storm Series 100, 200, 300

STEPHEN E. BOURQUIN REGISTERED No. S0441 STATE OF INDIANA LAND SURVEYOR

Sheet No. 15 of 27 Sheets

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

NOTES:

1. Maintain a minimum of 18" of vertical separation per IDEM requirements.

2. Unless otherwise noted all noted curb casting elevations are to top of curb.

3. The noted length for pipe segments with end sections include the concrete end section.

"SSA" denotes Sanitary Sewer Line "A"

"SSB" denotes Sanitary Sewer Line "B"

"SSC" denotes Sanitary Sewer Line "C"

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"FLn" denotes Fairfield Lane

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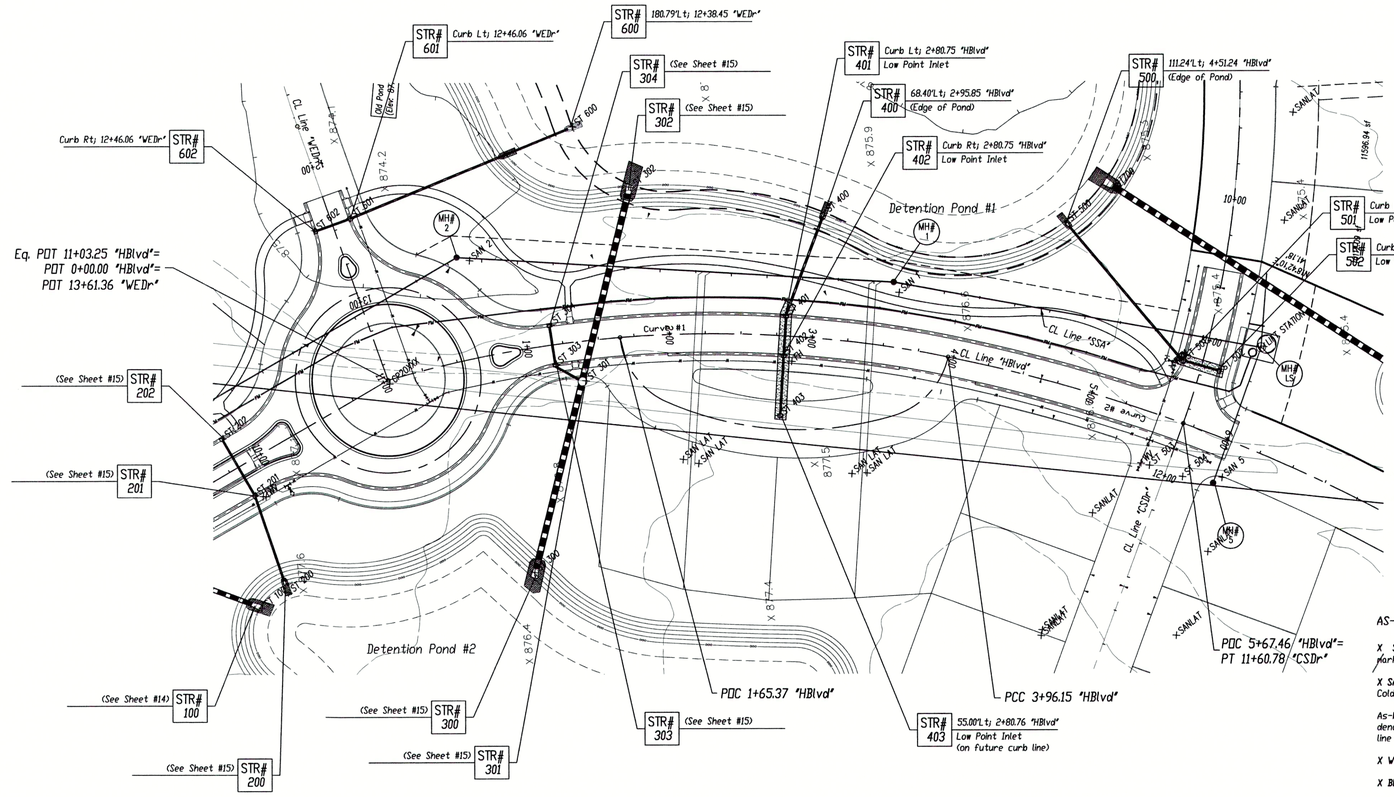
"CSDr" denotes Cold Springs Drive



AS-BUILT NOTES:

X SANLAT denotes field location of sanitary lateral markers

X SANMHCSX.X denotes field location of a manhole in Cold Springs X.X denotes the manhole number

As-built locations of the sanitary lateral tees are denoted as distances from the downstream manhole, in line with the next upstream manhole.

X WV denotes field location of water valve.

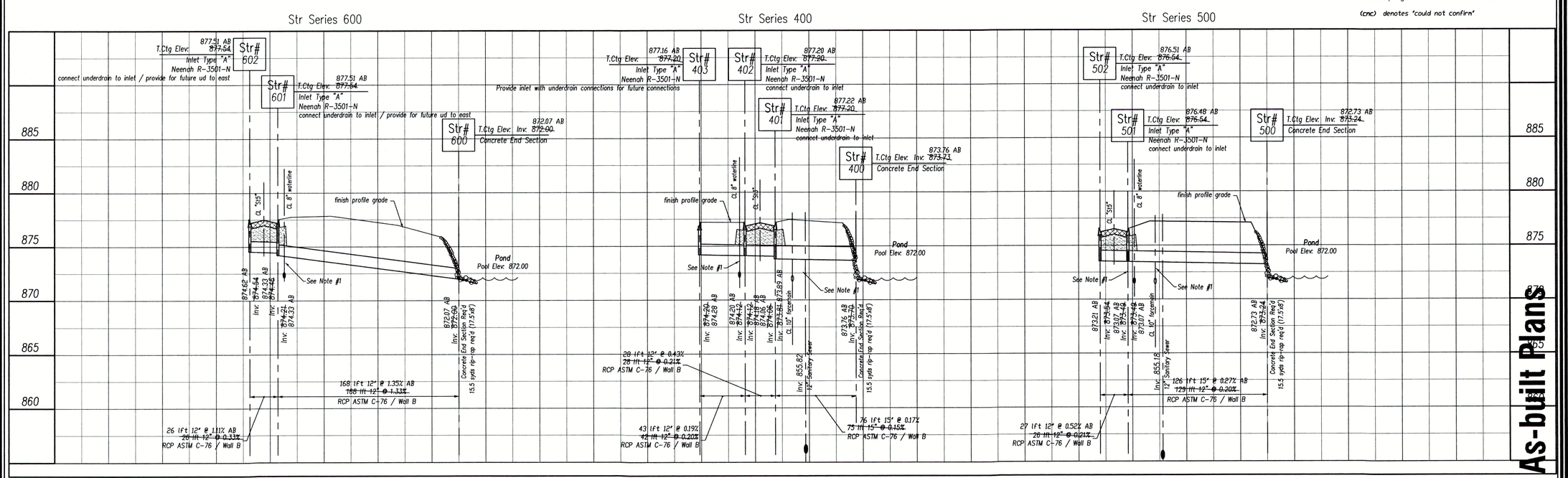
X BOV denotes field location of blow-off valve

X FH denotes field location of Fire Hydrant

See As-built Plan notes from contractor for measured locations of tees, ells, valves, hydrants and other fittings from street centerline intersections.

X STCSSxxx denotes field location of storm structure in Cold Springs xxx denotes the structure number.

(cnc) denotes "could not confirm"



As-built Plans

North

Scale: 1"=50'

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Fax: 317.705.2089

Date 1.30.04

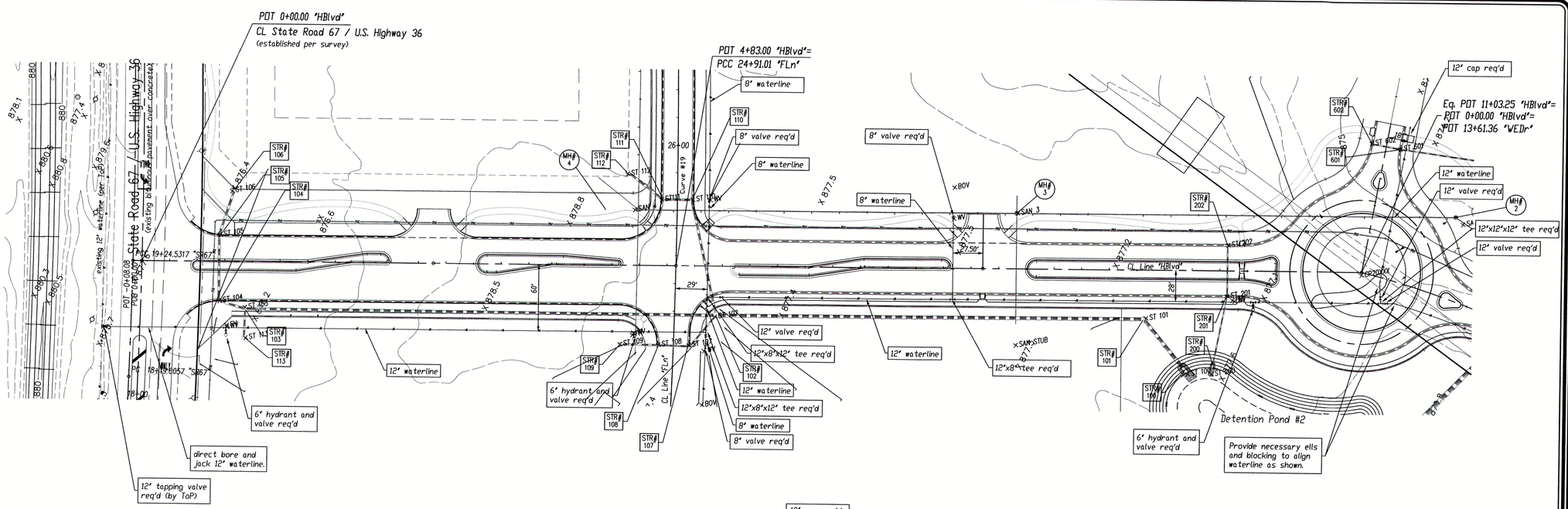
Date	Revision
3/4/04	Revised per client direction on alignments.
4/1/04	Corrected str numbering
6/29/04	Revised to add segment of Fairfield Road to plans per client.

Project: Huntzinger Farms Phase I, Pendleton, Madison County, Indiana

Sheet Title: Storm Sewer Plan-Profile Storm Series 400, 500

STEVEN E. BOURDON REGISTERED No. S0441 STATE OF INDIANA LAND SURVEYOR

Sheet No. 16 of 27 Sheets



AS-BUILT NOTES:

X SANLAT denotes field location of sanitary lateral markers

X SANMHCSX.X denotes field location of a manhole in Cold Springs X.X denotes the manhole number

As-built locations of the sanitary lateral tees are denoted as distances from the downstream manhole, in line with the next upstream manhole.

X WV denotes field location of water valve.

X BOV denotes field location of blow-off valve

X FH denotes field location of Fire Hydrant

See As-built Plan notes from contractor for measured locations of tees, ells, valves, hydrants and other fittings from street centerline intersections.

X STCSSxxx denotes field location of storm structure in Cold Springs xxx denotes the structure number.

(cnc) denotes 'could not confirm'

NOTES:

1. Maintain a minimum of 18" of vertical separation per IDEM requirements.

2. Unless otherwise noted all noted curb casting elevations are to top of curb.

3. The noted length for pipe segments with end sections include the concrete end section.

"SSA" denotes Sanitary Sewer Line "A"

"SSB" denotes Sanitary Sewer Line "B"

"SSC" denotes Sanitary Sewer Line "C"

"HBlvd" denotes Huntzinger Blvd

"FLn" denotes Fairfield Lane

"WERd" denotes Waters Edge Road

"CSDr" denotes Cold Springs Drive

As-built Plans

North

Scale: 1"=50'

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Suite 120
Indianapolis, Indiana 46240
Tel: 317.705.2083
Fax: 317.705.2089

Date 1.30.04

Date	Revision
3/4/04	Revised per client direction on alignments.
6/29/04	Revised to add segment of Fairfield Road to plans per client.

Project: **Huntzinger Farms** Phase I
Pendleton, Madison County, Indiana

Sheet Title: **Waterline Plan**

Sheet No. **17** of **27** Sheets

Denotes approximate limits of granular backfill.
(See specifications for exact limits).

NOTES:

1. All radii are measured to back of curb.

2. See Sheets #9 & 10 for details of the street and intersections.

"SSA" denotes Sanitary Sewer Line "A"

"SSB" denotes Sanitary Sewer Line "B"

"SSC" denotes Sanitary Sewer Line "C"

"HBlvd" denotes Huntzinger Blvd

"FLn" denotes Fairfield Lane

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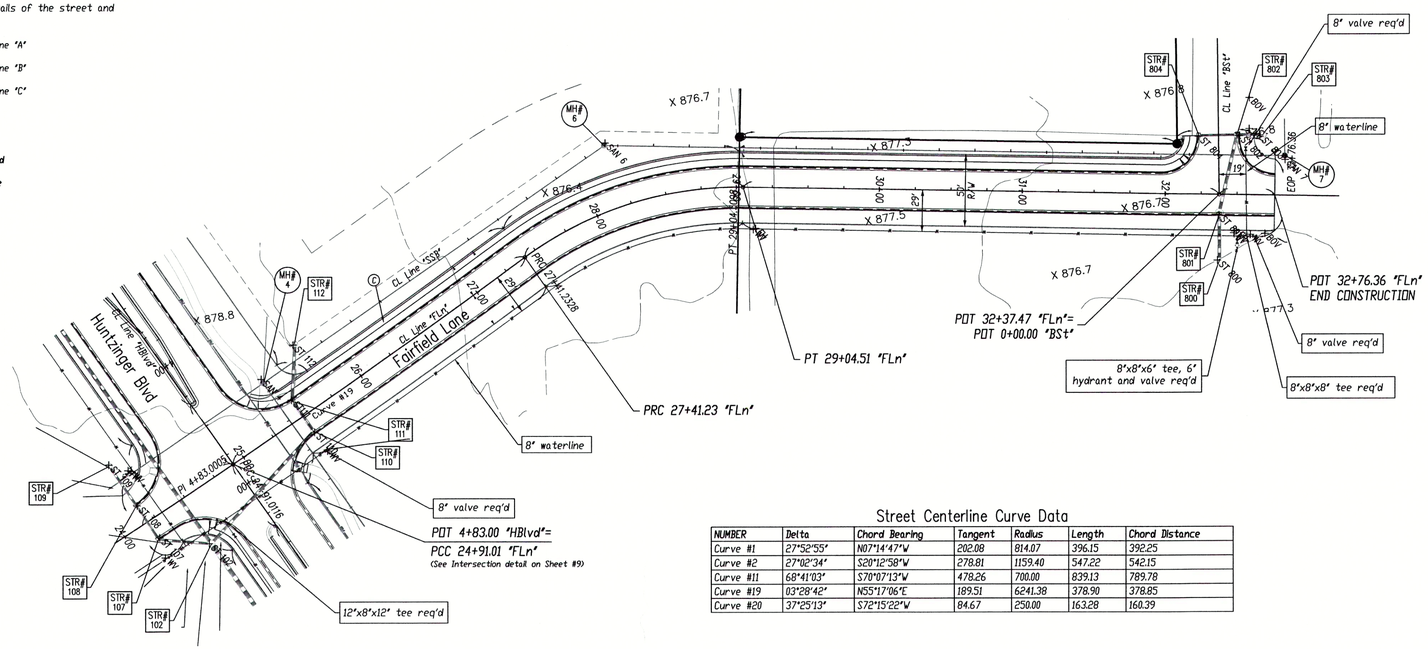
"CSDr" denotes Cold Springs Drive



Street Centerline Curve Data

NUMBER	Delta	Chord Bearing	Tangent	Radius	Length	Chord Distance
Curve #1	27°52'55'	N07°14'47"W	202.08	814.07	396.15	392.25
Curve #2	27°02'34'	S20°12'58"W	278.81	1159.40	547.22	542.15
Curve #11	68°41'03'	S70°07'13"W	478.26	700.00	839.13	789.78
Curve #19	03°28'42'	N55°17'06"E	189.51	6241.38	378.90	378.85
Curve #20	37°25'13'	S72°15'22"W	84.67	250.00	163.28	160.39

PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

WITHIN INDIANA:
1-800-382-5544
FROM OUTSIDE INDIANA:
1-800-428-5200

ELECTRIC ..... RED
GAS-OIL ..... YELLOW
COMMUNICATIONS ..... ORANGE
WATER ..... BLUE
SEWER ..... GREEN
PROPOSED EXCAVATION ..... WHITE

THE INFORMATION NEEDED WHEN CALLING INDIANA UNDERGROUND PLANT PROTECTION SERVICES, INC. IS AS FOLLOWS:

COUNTY AND TOWNSHIP
STREET ADDRESS
TYPE OF WORK
EXTENT OF WORK
NAME OF CALLER AND TITLE
TELEPHONE NUMBER
BEST TIME TO CALL
START DATE AND START TIME
CONTRACTOR NAME AND ADDRESS

AS-BUILT NOTES:

X SANLAT denotes field location of sanitary lateral markers

X SANMHCSX.X denotes field location of a manhole in Cold Springs X.X denotes the manhole number

As-built locations of the sanitary lateral tees are denoted as distances from the downstream manhole, in line with the next upstream manhole.

X WV denotes field location of water valve.

X BOV denotes field location of blow-off valve

X FH denotes field location of Fire Hydrant

See As-built Plan notes from contractor for measured locations of tees, ells, valves, hydrants and other fittings from street centerline intersections.

X STCSSxxx denotes field location of storm structure in Cold Springs xxx denotes the structure number.

(cnc) denotes "could not confirm"

As-built Plans

North

Scale: shown

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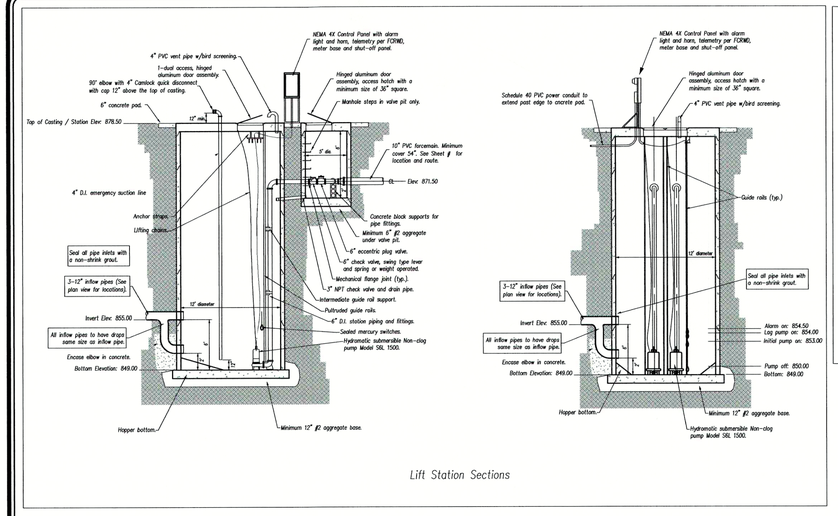
Date 6.29.04

Revision | Date

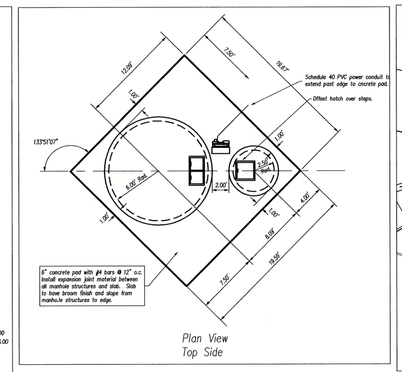
Project: Huntzinger Farms
Phase I
Pendleton, Madison County, Indiana

Sheet Title: Waterline Plan
Line "FLn" Fairfield Lane

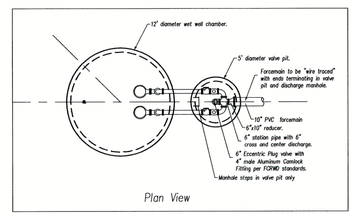
Sheet No. 18 of 27 Sheets



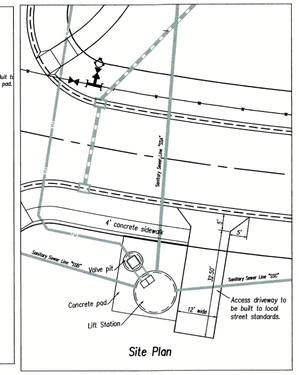
Lift Station Sections



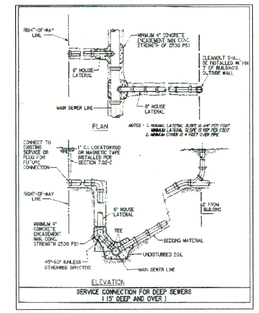
Plan View
Top Side

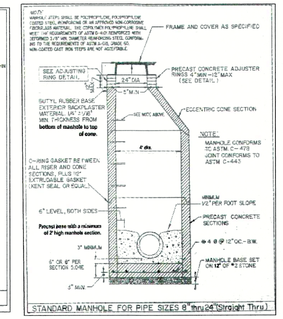


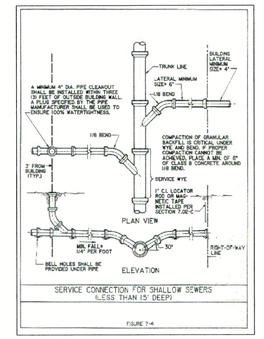
Plan View

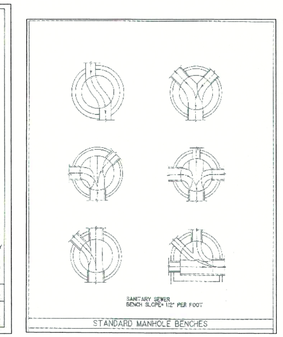


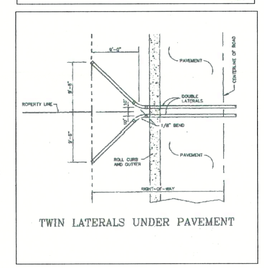
Site Plan

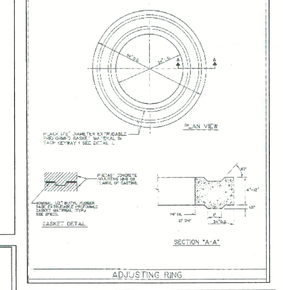


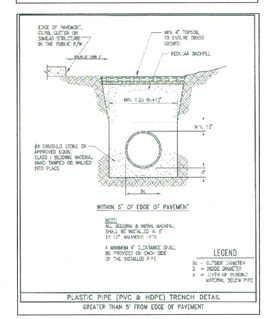


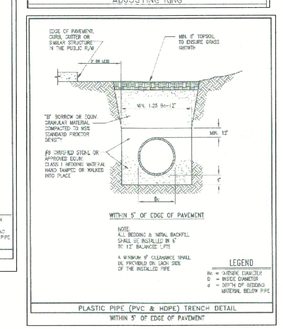












SUBMERSIBLE LIFT STATION
GENERAL SPECIFICATION GUIDE
FALL CREEK REGIONAL WASTE DISTRICT
DUPLEX NON-CLOG SEWAGE LIFT STATION – CONCRETE WELL

I. Scope of Work:

A. Furnish all labor, equipment and material to construct one duplex Submersible pumping station consisting of pumps, motors, wet basin, separate valve pit, valves, piping, hatches, guide rails, pump removal components, control center, float switches, remote monitor, interconnecting electrical wiring, incoming power supply, and other features regularly and normally required as a part of a complete and functional facility. All work shall be in accordance with site requirements, details in the plans, these specifications and the manufacturer's recommendations.

II. General Requirements:

A. All of the mechanical and electrical equipment shall be an integral package supplied by the pump manufacturer with local representation so as to provide undivided responsibility. The package shall be Hydromatic Pump equipment and UL 508/698A Control manufacturer.

B. The contractor shall submit to the Project Engineer for review and approval, three (3) sets of shop drawings, detailed specifications, pump warranty and performance characteristics for all of the equipment and fixtures to be furnished and installed. The Project Engineer will review the submittal and render a decision in writing as to the acceptability of the equipment. Unless otherwise noted any materials, equipment or work delivered, purchased or completed without prior written engineering approval, may not be accepted.

C. Any exceptions to this standard or associated approved plans shall be submitted in writing and clearly stated. The exceptions must be approved by the Engineer prior to proceeding with the work.

D. All components of the lift station that are exposed to weather shall be constructed of material that is resistant to corrosion and will not surface protection throughout the expected life of the lift station.

III. Operating Conditions:

A. Each pump shall have a capacity of 500 gallons per minute at a total dynamic head of 29 feet when operating at 60% minimum efficiency. The pump motor shall be a minimum 15 horsepower, 1150 RPM maximum, 230 volt, 3 phase, 60 cycle. Each pump shall be provided with 55 feet of power cable and sensor cable. The pump shall be a pump model SKL1500 as manufactured by Hydromatic and shall meet a future condition of 800 GPM at 36" TDH at 70% minimum efficiency.

IV. Pumping Equipment:

A. Pumps shall be of the submersible type for handling raw unscreened sewage. Pump volute, motor and seal housing are to be high quality gray cast iron. Impeller shall be either cast iron or cast bronze of a non-clog design capable of handling minimum three (3) inch sphere solids, fibrous material, heavy sludge and other matter found in normal sewage applications. Impeller shall have pump out vanes on the back shroud of the impeller to keep pumped material away from the seal area and increase operating life. Impeller shall be either slip fit or taper fit with key to securely lock the impeller to the driving shaft. The pump volute shall be fit with a replaceable bronze wear ring to minimize wear on the impeller and help achieve longer balanced operating life. All fasteners shall be of stainless steel.

B. All mating surfaces where water tight sealing is required shall be machined and fitted with nitrile rubber O-rings. Sealing shall be accomplished when metal-to-metal contact is made, resulting in controlled compression of the rubber O-rings without requirement of a specific torque limit.

C. The pump shall be provided with a mechanical rotating shaft seal system running in an oil reservoir having separate, constantly lubricated lapped seal faces. The lower seal unit between the pump and oil chamber shall consist of one (1) stationary seat and one (1) rotating ring held in place by its own spring. The lower seal shall be removable without disassembling the seal chamber. The upper seal between the motor and the seal chamber shall be of the same design with its own separate spring system. The seals shall require neither maintenance nor adjustment, but shall be easily inspected and replaceable. Shaft seals with conventional double seal utilizing a single spring between the two seals and requiring a pressure differential to offset external pressure shall not be considered acceptable nor equal to the dual independent seal system specified. The shaft sealing system shall be capable of operating submerged to pressures equivalent to two hundred (200) feet. No seal damage shall result from operating the pump unit out of its liquid environment. The seal system shall not rely upon the pumped media for lubrication. Pumps with bronze bushing between mechanical seals will not be acceptable. The seal chamber shall also be equipped with a seal failure sensor probe which will sense water intrusion through the lower seal. This sensor is to be connected to an alarm in the control panel to indicate lower seal failure.

D. The stator winding, rotor and bearings are to be mounted in a sealed submersible type housing. Insulation utilized in the stator windings shall be class F with maximum temperature capability of 155 degrees Centigrade. Motor housing shall be filled with a high-dielectric oil to give superior heat transfer and allow the bearings to run in a clean, well lubricated environment; or the housing shall be air filled with grease lubricated bearings. The pump and motor are to be specifically designed so that they may be operated partially or completely submerged in the liquid being pumped. The pump should not require cooling water jackets. Stators shall be securely held in place with a removable end ring and threaded fasteners so that it may be easily removed in the field without use of heat or a press without exception.

Shaft shall be of stainless steel and supported by ball bearings. Motor shall be provided with heat sensing units attached to the motor windings, which shall be connected to the control panel to shut down the pump if overheating occurs.

E. Pump motor cable and heat sensor /seal failure sensor cable shall be suitable for submersible pump applications and this shall be indicated by a code or legend permanently embossed on the cable. Cable sizing shall conform to NEC specifications for pump motors and shall be of adequate size to allow motor voltage conversion without replacing the cable. Cable of the proper length shall be provided to eliminate the need for splices or junction boxes between pump and 'Control Center'. The cable shall enter the motor through a cord cap assembly which is double-sealed allowing disassembly and disconnect of the wires at the motor and still not damage the sealed characteristics of the motor housing. Each individual conductor shall be color coded in accordance with generally accepted industry standards. The color coding shall designate the application of the conductor.

F. The pump mounting base shall include adjustable guide rail supports and a discharge connection with a one hundred twenty-five (125) pound standard flange. The base and the discharge piping shall be permanently mounted in place.

G. A rail system shall be provided for easy removal of the pump and motor assembly for inspection and service. The system shall not require a man to enter the wet well to remove the pump and motor assembly. One (1) H type fiberglass reinforced plastic (FRP) I-Beam shall be provided for each pump.

H. The pumps shall be equipped with sliding brackets or rail guides. To insure easy removal of the pumps, the rail guides attached to each pump shall not encircle the rails. A stainless steel lifting chain of adequate length for the basin depth shall be provided for each pump.

I. The rails and rail guides shall function to allow the complete weight of the pumping unit to be lifted on dead center without binding and stressing the pump housing. The rail system shall function to automatically align the pumping unit to the discharge connection by a simple downward movement of the pump. No twisting or angle approach will be considered acceptable. The actual sealing of the discharge interface will be of the hydraulically sealing diaphragm type assembly with removable Buna-N diaphragm as supplied by Hydromatic Pump.

J. Pump warranty shall be provided by the pump manufacturer and shall warrant the units being supplied to the Owner against defects in workmanship and materials for a period of one (1) year under normal use, operation and service. The warranty shall be in printed form and apply to all similar units. A copy of the warranty statement shall be submitted with the approval drawings.

V. Basin, Valve Pit and Accessories:

A. The basin and valve pit are to be constructed of precast concrete. The actual arrangement of the structures is to be as shown in the approved plans. The wet well basin top shall be provided with a four (4) inch PVC vent having a downward pointing inlet and screen over the inlet opening.

B. The basin, valve pit, flat tops and base slabs are to be constructed of precast reinforced concrete manhole sections conforming to ASTM C-478. All joints between precast sections shall be made with an approved rubber O-ring in accordance with ASTM C-443 and a 1/2 inch diameter non-asphaltic mastic conforming to AASHTO M-198 and Federal Specification SS-S21-A. In addition, the outside wall below grade is to be coated with bituminous waterproofing material. The top and bottom of the chambers shall be precast or may be poured in place concrete if approved by the Engineer.

C. The pump supplier shall to provide an aluminum two (2) door access hatch frame and door assembly to be installed in the concrete basin top. This door assembly shall provide access for removal of the pumps and shall support the guide rails. The doors shall be provided with lifting handle, safety latch to hold door in the open position and a hasp suitable for a padlock. The doors shall have a non-skid finish, designed for light, medium or heavy duty, depending on the location of the pumping station.

F. An aluminum single door access hatch frame and door assembly, similar to the one described above, shall be provided for use as entry to the valve pit. Minimum opening for the valve box entry shall be thirty-six (36) inches by thirty-six (36) inches.

G. A swing check valve with external swing arm and an eccentric plug valve shall be installed in the valve pit in each pump's discharge piping. A minimum clearance of twelve (12) inches shall be allowed from the bottom of the valves to invert of the pit. A drain plug and ball valve shall be installed to drain the valve pit back to the wet basin, but not allow the wet basin liquid to enter the valve pit.

H. A 4" ductile iron pump suction line shall be provided from within 12" of the basin floor up through the basin top casting for use as an emergency pump suction connection as shown on the plans. The suction line shall terminate 12" above the top of the casting with a 90 degree elbow and quick disconnect fitting matching the Fall Creek Regional District portable pumping equipment. The 4" Camlock quick disconnect shall also be provided with an air tight cap.

I. The discharge piping in the valve pit shall be provided with a 4" plug valve and a 4" Camlock quick disconnect fitting in the common discharge pipe, after the individual pump plug valves, for use as an emergency pump discharge connection as shown on the plans. The quick disconnect fitting shall match the Fall Creek Regional Waste District portable pumping equipment.

VI. Disconnect Switch:

A. A single main disconnect switch of adequate size to provide power for the 'Control Center' and its related components shall be provided by the Contractor.

B. The disconnect switch shall be housed in a NEMA 4X stainless steel enclosure.

VII. Transfer Switch

A. A manual transfer switch of adequate size to provide power via incoming electrical service or emergency generator power shall be provided.

B. The transfer switch shall be built in the same enclosure as the main control center.

C. A receptacle shall be provided to fit the Fall Creek Regional Waste District generator.

VIII. Control Center:

A. The control center shall be built in a NEMA 4X stainless steel enclosure and shall be suitable for the specified horsepower and voltage for the pumping equipment. The outer door of the panel shall be hinged dead front with provisions for locking with a padlock. Inside shall be a separate hinged panel to protect all electrical components.

B. The control center shall include a micro-processor base pump controller manufactured by USEMCO model 119218-5 (Without Exceptions) to control the pumps and to maintain the level in the wet well. The controller shall also receive a signal from the back-up floats and automatically switch to back-up if the 4-20ma signal is lost. Also shall include all necessary components for above controller to operate.

C. A circuit breaker and magnetic starter (NEMA Rated) with three (3) leg overload protection (2 leg overload for single phase applications) and manual reset shall be provided for each pump. Starters shall have auxiliary contacts, on three phase applications, to operate both pumps on over-ride condition. Larger pumps will require soft start starters and shall be determined by the utility. A separate circuit breaker shall be supplied for power to the control circuit. The control center shall include a control voltage transformer to reduce supply to 115 volt, single (1) phase. An alternating relay shall be provided to alternate pumps on each successive cycle of operation. A green light and H-O-A switch shall be provided for each pump. A terminal strip shall be provided to make field connections of pump power leads, float switches, seal sensor leads, and remote monitor panel interconnections.

D. A time delay relay shall be provided to delay start of second pump should power outage occur.

E. The control center shall incorporate connections for heat sensors which are installed in the pumps. The connection shall disconnect the starter upon high temperature signal, and will automatically reconnect when condition has been corrected.

F. The control center shall incorporate connections for seal failure sensors which are installed in the pumps. The panel will have a seal failure alarm light for each pump. This alarm indicates failure of the lower mechanical seal in the pump. This will be a alarm light only and will not shut down the pump.

G. The control center shall include an hour meter for each pump to register the elapsed operating time of each pump.

H. The control center shall have a high water alarm built-in the main enclosure. The alarm shall consist of a flashing alarm light with red Lexan plastic cover or red glass globe with metal guard mounted on top of the enclosure such that it is visible from all directions. An alarm horn shall be mounted on the side of the enclosure. A push to test horn and light button as well as a push to silence horn button shall be provided and mounted on the side of the enclosure.

I. The control center shall include a condensate heater to protect against condensation inside the enclosure. The heater shall be placed so as not to damage any other component or wiring in the control center.

J. The control center shall include lightning protection.

K. The control center shall incorporate an alternator selector switch to allow selection of automatic alternation or manual selection of the lead pump.

L. The control center shall include a GFI convenience outlet with a 20 AMP breaker and suitable transformer or power supply to provide 110 single (1) phase power to the convenience outlet.

M. The control center shall be suitable for connection to a remote monitor package as described in the section titled "Remote Monitor Package". The main control must include the following interconnection capability:

1. Circuit breaker for power remote monitor panel as described above.
2. Relay contact to signal high water alarm.
3. Relay contact to signal tripping of the overload of any of the pumps.
4. Relay contact to transmit signal of seal failure trip of any of the pumps.
5. Current transformer to provide amperage reading to signal Pump #1 run.
6. Current transformer to provide amperage reading to signal Pump #2 run.

N. A minimum four (4) inch PVC schedule 40 wall conduit shall be provided from the wet well basin to the control center which will allow the pump power cables, sensor cables and float switch cables to be pulled through without difficulty and allow the use of one (1) piece cables from the pumps and float switches to the control center. The conduit shall be sealed at the control center to avoid entrance of sewer gases into the control panel.

O. The control center and associated components shall be mounted on a non-maintenance type pedestal or mounting stand constructed of aluminum. The control center shall be located so as to provide safe access to the panel while wet well hatch doors are opened, and shall be positioned so as not to be between the access drive and the wet well.

P. All components of the control center shall be American made and available from local sources. In particular, items such as circuit breakers, overload protection, relays, etc. shall be available and in stock by local sources.

Q. In order to maintain unit responsibility and warranty on the pumping equipment and control center, the control center must be accepted in writing by the pump manufacturer, as suitable for operation with the pumping equipment.

R. The control panel shall bear a UL label and meet UL508/698A criteria.

IX. Level Controls

A. The liquid level of the wet well shall be sensed by a submersible level transducer model 6100 as manufactured by Sigma. The transducer shall be a 2-wire type to operate from a supply voltage of 15 to 45 VDC and produce a 4-20 mA instrumentation signal in direct proportion to the measured level excursion over a factory-calibrated range which will be indicated by readout on the front panel. It shall be of the head-pressure sensing type, suitable for continuous submerged, operation and shall be installed in accordance with the manufacturer's instructions. The bottom diaphragm face of the sensor will be installed where shown on the plans. The diaphragm, face shall be a minimum of 2.5 inches outside diameter.

X. Backup Mercury Float Switches:

A. Sealed float type mercury switches shall be supplied to control sump level and alarm signal. The mercury tube switches shall be sealed in a solid polyurethane float for corrosion and shock resistance. The support wire shall have a heavy Neoprene jacket and a weight shall be attached to the cord above the float to hold the float in place in the sump. The floats shall also be capable of supporting themselves from a stainless steel float bracket.

XI. Backup System Operation:

A. On sump level rise, the lower mercury switch shall first be energized, then the upper level switch shall next energize and start the lead pump. With the lead pump operating, sump level shall lower to lowest switch and turn off the pump. The alternating relay in the "Control Center" shall index on stopping of the pump so that the lag pump will start on the next operation. If sump level continues to rise when lead pump is operating, the override switch shall energize and start the lag pump. Both lead and lag pumps shall operate together until low level switch turns off both pumps. If the level continues to rise when both pumps are operating, alarm level switch shall energize and signal the alarm. If one pump should fail for any reason, the second pump shall operate on the override switch. All level switches shall be adjustable for level setting from the surface.

XII. Operation and Maintenance Manuals:

A. Four (4) operation and maintenance manuals shall be submitted to the owner.

B. Manuals shall include, at a minimum:

1. Operation instructions
2. Maintenance instructions
3. Recommended spare parts list
4. Lubrication schedule
5. Structural diagrams
6. As-built wiring diagrams
7. Bill of materials

XIII. Spare Parts:

1. The Contractor shall supply one set of spare parts for each station, including the following:

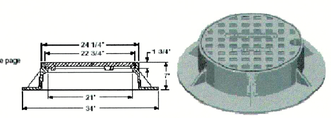
a. Two (2) full diameter impellers for specified pump model.

R-1772
Manhole Frame, Solid Lid

Heavy Duty

Also available with Non-Rocking feature. See page 6 for illustration.

Also available with 36" diameter flange.



North

Scale: none

Pendleton Consulting

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Phone: 765-778-6540 Fax: 765-778-9571
email: pendconsl@netdirect.net

Date: 01.30.04

Revision	Date
Revised per permanents from FCRWD/Triad per markup plans dated 4/16/04.	5/21/04
Revised to add segment of Fairfield Road to plans per client.	6/29/04
Revised to correct utility jurisdictions, add 4" emergency section to plans.	7/16/04

Project: **Huntzinger Farms Phase I**
Pendleton, Madison County, Indiana

Sheet Title: **Standard Detail**
Sanitary Sewer / Lift Station

Sheet No. **21** of **27** Sheets