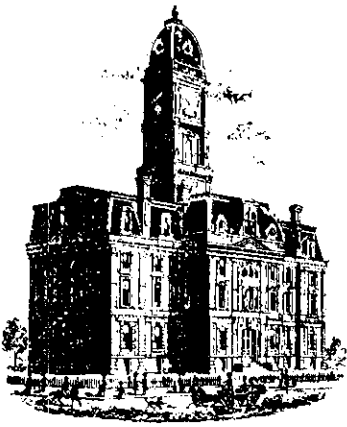


Drain: MERRIMAC Drain #: 278
Improvement/Arm: SECTION 6
Operator: JDH Date: 2-11-04
Drain Classification: Urban/Rural Year Installed: 2001

GIS Drain Input Checklist

- Pull Source Documents for Scanning JDH
- Digitize & Attribute Tile Drains _____
- Digitize & Attribute Storm Drains _____
- Digitize & Attribute SSD _____
- Digitize & Attribute Open Ditch _____
- Stamp Plans _____
- Sum drain lengths & Validate _____
- Enter Improvements into Posse JDH
- Enter Drain Age into Posse July 3-1
- Sum drain length for Watershed in Posse July 3-1
- Check Database entries for errors _____



SURVEYOR'S OFFICE

Hamilton County

Kenton C. Ward, Surveyor

Phone (317) 776-8495

Fax (317) 776-9628

Suite 188

One Hamilton County Square

Noblesville, Indiana 46060-2230

December 19, 2001

TO: Hamilton County Drainage Board

RE: Merrimac Drain, Section 6 Arm

Attached is a petition, non-enforcement request, plans, calculations, quantity summary and assessment roll for the Section 6 Arm, Merrimac Drain. I have reviewed the submittals and petition and have found each to be in proper form.

I have made a personal inspection of the land described in the petition. Upon doing so, I believe that the drain is practicable; will improve the public health; benefit a public highway and be of public utility; and that the cost, damages and expenses of the proposed drain will probably be less than the benefits accruing to the owners of land likely to be benefited. The drain will consist of the following:

6" SSD	4,688 ft	15" RCP	416 ft
12" SSD	731 ft	18" RCP	197 ft

The total length of the drain will be 6,032 ft.

The subsurface drains (SSD) to be part of the regulated drain are those located under the curbs. Only the main SSD lines which are located with the right of way are to be maintained as regulated drain. Laterals for individual lots will not be considered part of the regulated drain.

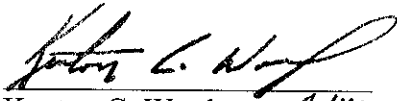
I have reviewed the plans and believe the drain will benefit each lot equally. Therefore, I recommend each lot be assessed equally. I also believe that no damages will result to landowners by the construction of this drain. I recommend a maintenance assessment of \$30.00 per lot, \$5.00 per acre for roadways, with a \$30.00 minimum. With this assessment the total annual assessment for this drain/ this section will be \$1,362.16.

Parcels assessed for this drain may be assessed for the Osborn-Collins or Williams Creek Drain at sometime in the future.

I believe this proposed drain meets the requirements for Urban Drain Classification as set out in IC 36-9-27-67 to 69. Therefore, this drain shall be designated as an Urban Drain.

I recommend that upon approval of the above proposed drain that the Board also approve the attached non-enforcement request. This request is for the reduction of the regulated drain easement to those easement widths as shown on the secondary plat for Merrimac Section 6 as recorded in the office of the Hamilton County Recorder.

I recommend the Board set a hearing for this proposed drain for Jan 28, 2002.



Kenton C. Ward *KCW*
Hamilton County Surveyor

KCW/mkh



Fidelity and Deposit Company of Maryland

Home Office: P.O. Box 1227, Baltimore, MD 21203-1227

Bond No. 08595859



SUBDIVISION/SITE IMPROVEMENT BOND

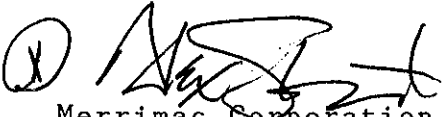
KNOW ALL MEN BY THESE PRESENTS, that we, Merrimac Corporation
 _____, as Principal, and Fidelity and Deposit Company of Maryland, of
 Baltimore, Maryland, as Surety, are held and firmly bound unto the Hamilton County
Commissioners
 as Oblige, in the sum of Sevety-four thousand & 007/100-----
 (\$ 74,000) Dollars for the payment of which, well and truly to be made, we
 jointly and severally bind ourselves, our executors, administrators, successors, and assigns, firmly by these
 presents.

WHEREAS, the Principal has agreed to perform the various improvements as detailed by either the
 plan(s)/specification(s)/agreement, prepared by Hamilton County Commissioners
(Storm sewers & sub-surface drains)
 to the subdivision known as Merrimac Section 6

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that, if said Principal shall
 perform and complete said improvements to said development in accordance with either the
 plan (s)/specification(s)/agreement, then this obligation shall be void, otherwise to be and remain in full
 force and effect.

THIS BOND WILL TERMINATE upon written acceptance of the improvements by the Oblige to the
 Principal and/or Surety.

Sealed with our seals and dated this 6th day of November, 2001.


 Merrimac Corporation

By: _____
 Principal

FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Brenda K. Russell
 Brenda K. Russell, Attorney-in-fact

CON76100ZZ0501F



Fidelity and Deposit Company of Maryland

Home Office: P.O. Box 1227, Baltimore, MD 21203-1227

Bond No. 08595857



SUBDIVISION/SITE IMPROVEMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, Merrimac Corporation
 _____, as Principal, and Fidelity and Deposit Company of Maryland, of
 Baltimore, Maryland, as Surety, are held and firmly bound unto the Hamilton County
Commissioners
 as Obligee, in the sum of Thirty thousand and 00/100
 (\$ 30,000) Dollars for the payment of which, well and truly to be made, we
 jointly and severally bind ourselves, our executors, administrators, successors, and assigns, firmly by these
 presents.

WHEREAS, the Principal has agreed to perform the various improvements as detailed by either the
 plan(s)/specification(s)/agreement, prepared by Hamilton County Commissioners
(Erosion control)
 to the subdivision known as Merrimac Section 6

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that, if said Principal shall
 perform and complete said improvements to said development in accordance with either the
 plan (s)/specification(s)/agreement, then this obligation shall be void, otherwise to be and remain in full
 force and effect.

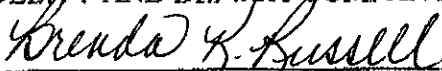
THIS BOND WILL TERMINATE upon written acceptance of the improvements by the Obligee to the
 Principal and/or Surety.

Sealed with our seals and dated this 6th day of November, 2001.


 By: Merrimac Corporation

Principal

FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: 
Brenda K. Russell, Attorney-in-fact

CON76100ZZ0501F

Power of Attorney
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

HOME OFFICE: P.O. BOX 1227, BALTIMORE, MD 21203-1227

Know ALL MEN BY THESE PRESENTS: That the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation of the State of Maryland, by W. B. WALBRECHER, Vice-President, and T. E. SMITH, Assistant Secretary, in pursuance of authority granted by Article VI, Section 2, of the By-Laws of said Company, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, does hereby nominate, constitute and appoint John S. Flynn, Thomas A. Flynn, Brenda Raymer, Lesley G. Martin, Gerald F. O'Connor, Brenda K. Russell, Deborah Vanderveen and Diana L. Bedea, all of Indianapolis, Indiana, EACH its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as aforesaid, and as its act and deed: any and all bonds and undertakings and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Company, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its office in Baltimore, Md., in their own proper persons. This power of attorney revokes that issued on behalf of Larry K. Chambers, etal, dated October 3, 1994.

The said Assistant Secretary does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article VI, Section 2, of the By-Laws of said Company, and is now in force.

IN WITNESS WHEREOF, the said Vice-President and Assistant Secretary have hereunto subscribed their names and affixed the Corporate Seal of the said FIDELITY AND DEPOSIT COMPANY OF MARYLAND, this 16th day of July, A.D. 1997.

ATTEST:

FIDELITY AND DEPOSIT COMPANY OF MARYLAND



T. E. Smith

Assistant Secretary

By: *W. B. Walbrecher*

W. B. Walbrecher

Vice-President

State of Maryland } ss:
County of Baltimore }

On this 16th day of July, A.D. 1997, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, came W. B. WALBRECHER, Vice-President and T. E. SMITH, Assistant Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and they each acknowledged the execution of the same, and being by me duly sworn, severally and each for himself do depose and saith, that they are the said officers of the Company aforesaid, and that the seal affixed to the preceding instrument is the Corporate Seal of said Company, and that the said Corporate Seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.



Carol J. Fader

Notary Public

My Commission Expires: August 1, 2000

CERTIFICATE

I, the undersigned, Assistant Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the original Power of Attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate: and I do further certify that the Vice-President who executed the said Power of Attorney was one of the additional Vice-Presidents specially authorized by the Board of Directors to appoint any Attorney-in-Fact as provided in Article VI, Section 2, of the By-Laws of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed."

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said Company, this

6th day of November, 2001.

J. D. Matis

Assistant Secretary

L1428-044-0145

EXTRACT FROM BY-LAWS OF FIDELITY AND DEPOSIT COMPANY OF MARYLAND

"Article VI, Section 2. The Chairman of the Board, or the President, or any Executive Vice-President, or any of the Senior Vice-Presidents or Vice-Presidents specially authorized so to do by the Board of Directors or by the Executive Committee, shall have power, by and with the concurrence of the Secretary or any one of the Assistant Secretaries, to appoint Resident Vice-Presidents, Assistant Vice-Presidents and Attorneys-in-Fact as the business of the Company may require, or to authorize any person or persons to execute on behalf of the Company any bonds, undertakings, recognizances, stipulations, policies, contracts, agreements, deeds, and releases and assignments of judgements, decrees, mortgages and instruments in the nature of mortgages, . . . and to affix the seal of the Company thereto."

1126



K.W.

SURVEYOR'S OFFICE
Hamilton County

Kenton C. Ward, CFM
Surveyor of Hamilton County
Phone (317) 776-8495
Fax (317) 776-9628

Suite 188
One Hamilton County Square
Noblesville, Indiana 46060-2230

To: Hamilton County Drainage Board

August 21, 2009

Re: Williams Creek: Merrimac Section 6

Attached are as-builts, certificate of completion & compliance, and other information for Merrimac Section 6. An inspection of the drainage facilities for this section has been made and the facilities were found to be complete and acceptable.

During construction, changes were made to the drain, which will alter the plans submitted with my report for this drain-dated Merrimac Section 6. The report was approved by the Board at the hearing held January 28, 2002. (See Drainage Board Minutes Book 6, Pages 248-250)
The changes are as follows:

Structure:	Length:	Size	Material:	Up Invert:	Dn_Invert	Grade:
663-662	135	12	RCP	896.34	895.99	0.26
662-661	19	12	RCP	895.86	895.75	0.56
661-660	28	15	RCP	895.73	895.53	0.7
660-617	162	15	RCP	895.53	894.43	0.68
657-656	45	12	RCP	896.64	896.3	0.75
656-655	34	15	RCP	896.3	896.12	0.52
655-615	164	18	RCP	896.12	894.6	0.92
665-664	14	18	RCP	897.86	898.02	1.07
667-666	179	12	RCP	898.42	898.13	0.16
666-665	28	15	RCP	898.1	897.94	0.57
664-EX	280	18	RCP	897.99	897.26	0.26
653-652	156	12	RCP	898.08	896.47	1.03
652-651	28	12	RCP	896.41	896.13	0.99
651-650	21	12	RCP	896.15	895.98	0.79
650-610	141	12	RCP	895.95	892.96	2.11

RCP Pipe Totals:

12	724
15	252
18	458

Total: 1434

RCP Pipe Totals:

RICHLAND	2903
WARINER	1138
HALIFAX	731

Total: 4772

The length of the drain due to the changes described above is now **6,206 feet**.

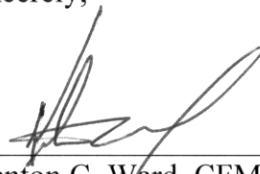
The following sureties were guaranteed by Fidelity and Deposit Company and have expired.

Bond-LC No: CSB8102778
Insured For: Storm Sewers
Amount: \$115,086.00
Issue Date: October 26, 1999

Bond-LC No: CSB8102779
Insured For: Erosion Control
Amount: \$28,340
Issue Date: October 26, 1999

I recommend the Board approve the drain's construction as complete and acceptable.

Sincerely,



Kenton C. Ward, CFM
Hamilton County Surveyor

KCW/slm

(AB) - Denotes As-Built Elevations

RECORD DRAWING

STORM SEWER AS-BUILTS
STRUCTURES AND PIPE ONLY
JULY 6, 2009

DAVID A. YORK, REG. L.S. - #20200053



THE ELEVATIONS FOR THE STORM STRUCTURES AND PIPE ARE BASED ON THE NAVD 1988. THE DESIGN ELEVATIONS SHOWN IN THE CONSTRUCTION PLANS WERE BASED ON THE NGVD 1929. THE DIFFERENCE BETWEEN THESE TWO DATUMS HAS BEEN CALCULATED TO BE -0.37 FEET IN THIS AREA.

THE PERMANENT VERTICAL BENCHMARK REFERENCED FOR THESE AS-BUILT DRAWINGS WAS "LEE 4 RESET" ESTABLISHED BY THE DIVISION OF WATER OF THE INDIANA DEPARTMENT OF NATURAL RESOURCES.

ELEVATION - 910.898 (NGVD 1929)

ELEVATION - 910.531 (NAVD 1988)

UTILITIES - WESTFIELD

GAS
Indiana Gas Company
395 West Co. 125 S.
Lafayette, Indiana 46902
(317) 482-6455
Attn: Jeff Avery

TELEPHONE

Ameritech
6928 North College Avenue
Indianapolis, Indiana 46221
(317) 252-4270
Attn: John Messinger

SANITARY SEWERS AND WATER
HAMILTON WESTERN UTILITIES

1320 Grayhound Place
Carmel, Indiana 46032
(317) 848-8882
Attn: Doug Wilfang

ELECTRIC
P. S. I. Energy
P.O. Box 078
Carmel, Indiana 46032
(317) 381-3041
Attn: Mark To Bar

Utility Meters: within Indiana 1-800-382-5544
outside Indiana 1-900-428-5200

NOTE

The size and location of utilities are per plans and locations provided by the respective utility companies. All utility companies shall be notified prior to any excavation for field location of services.

Storm Structure Table

Str. #	Type	T.C.	Invert (ft)
850	BEHIVE	897.85	894.24(12) W. 893.55(15) S.
851	MANHOLE	894.30	895.32(12) E. 896.33(12) W.
852	INLET	890.65	895.64(12) E. 896.67(12) W.
853	INLET	891.50	896.58(12) E.
854	BEHIVE	892.10	895.30(15) W. 896.20(18) E.
855	INLET	890.50	896.45(12) S. 896.95(15) W.
856	INLET	895.41	897.17(15) S. 897.17(12) W.
857	INLET	891.07	897.51(12) W.
858	BEHIVE	894.49	893.27(15) W. 894.08(18) S.
859	INLET	891.10	896.04(12) S. 896.04(15) W.
860	INLET	891.10	896.22(12) S. 896.22(12) W.
861	MANHOLE	891.70	896.33(12) S. 896.33(12) W.
862	BEHIVE	900.00	897.60(12) S.
863	MANHOLE	892.50	898.21(18) E. 898.31(18) S.
864	INLET	892.00	897.50(12) W.
865	INLET	891.91	898.34(12) S. 898.34(15) E.
866	INLET	891.91	898.41(12) S. 898.41(12) E.
867	BEHIVE	891.80	898.59(12) W.

NOT EXISTING STUB STREETS TO BE SAW CUT PER INDOT SPECIFICATIONS TO CREATE A CLEAN JOINT WHEN PAVING

HOLEY MOLEY SAYS
"DON'T DIG BLIND"
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
CALL TOLL FREE
PER INDIANA STATE LAW 15-69-1891.
IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

GENERAL NOTES

1. ALL GRADES AT BOUNDARY SHALL MEET EXISTING GRADES.
2. IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES FOR PROPER STAKE LOCATIONS FOR EACH UTILITY BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER OR THE ENGINEER OF ANY CHANGES, OMISSIONS, OR ERRORS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.
3. STANDARD SPECIFICATIONS FOR HAMILTON WESTERN UTILITIES SHALL APPLY FOR ALL SANITARY SEWERS AND SPECIFICATIONS FOR HAMILTON COUNTY SURVEYOR SHALL APPLY FOR ALL STORM SEWERS. ANY PART OF THE SANITARY OR STORM SEWER TRENCHES RUNNING UNDER PAVED AREAS TO BE BACKFILLED WITH GRANULAR MATERIAL. THE SIZE AND LOCATION OF EXISTING UTILITIES SHOWN ARE PER INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES. ALL UTILITY COMPANIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION FOR FIELD LOCATION OF SERVICES.
4. SERVICE WALKS SHALL BE NON-REINFORCED CONCRETE 4" THICK AND 4" IN WIDTH.
5. 4" CONCRETE SERVICE WALK ACROSS FRONTAGE OF EACH LOT TO BE CONSTRUCTED BY OTHERS.
6. EXPANSION JOINTS AREA TO BE PLACED AT ALL WALK INTERSECTIONS AND BETWEEN WALKS AND PLATFORMS. SIDEWALK SCORES ARE TO BE EQUALLY SPACED BETWEEN EXPANSION JOINTS, CONTRACTION JOINTS AND PERPENDICULAR TO SIDEWALKS AT 5' INTERVALS OR LESS WITH A CONTRACTION JOINT EVERY 20' OR LESS.
7. TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
8. ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.H.A. STANDARDS FOR WORKER SAFETY.
9. CONTRACTOR SHALL MINIMIZE DAMAGE TO EXISTING TREES. REMOVE AND BACKFILL ALL AREAS WHERE ANY FIELD TREE CROSSES PROPOSED HOUSE PADS. ALL FIELD TREES INTERCEPTED TO BE PERPETUATED INTO STORM SEWER SYSTEM OR LAKE. THE SUBCONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER IN ANY CIRCUMSTANCES WHERE THIS CANNOT BE ACCOMPLISHED.
10. ALL FILL AREAS SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY (ASTM D-1557). FILL UNDER THE FOOTING SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY (ASTM D-1557).
11. DECORATIVE SIGNS, SPRINKLER SYSTEMS, TREES, LANDSCAPING MOUNDS, LIGHT POLES OR OTHER SUCH AMENITIES ARE NOT PERMITTED IN THE RIGHT OF WAY.
12. WATER MAIN VALVES SHALL NOT BE LOCATED UNDER STREET PAVEMENT.

LEGEND

- Existing Storm Sewer
- New Storm Sewer
- Existing Sanitary Sewer
- New Sanitary Sewer
- Existing Contour
- Existing Elevation
- New Pavement Grade
- All Other Finish Grades
- Match Existing Grades
- Corrected Grades
- Storm Structure Number
- Sanitary Structure Number
- Denotes Elevation and Approximate Pad Size
- Flow Arrow
- 4" Subsurface Drain
- Swale (S)
- Water Main
- Denotes Pad with 2' or More of Fill After Stripping
- Existing Trees
- Existing Gas Main
- Existing Telephone
- Existing Water Main
- Existing Flowline
- Existing Overhead Utilities

BENCHMARK

U.S.G.S. 83 RHP (1951)
BRONZE TABLE SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
(ELEVATION = 903.373)

Professional Engineer Seal for Keith Lash, State of Indiana, License No. 9800085.

Professional Engineer Seal for Keith Lash, State of Indiana, License No. 9800085.

Schneider Corporation logo and contact information: 12921 E. New Market Street, Suite 100, Carmel, IN 46032. Telephone: 317.589.9112. Fax: 317.826.6410. www.schneidercorp.com

MERRIMAC SECTION 6 WESTFIELD, INDIANA MERRIMAC CORP. CARMEL, INDIANA

DATE: 8/15/01 PROJECT NO.: 1045.004
DRAWN BY: MG CHECKED BY:
SHEET TITLE: DEVELOPMENT PLAN

DRAWING FILES: H:\1045\1045\1045\1045.DWG
USER: GSK-BSDRW
USER: GSK-BSDRW
USER: 1045\1045.DWG
SHEET NO.: C101

SSD LATERALS - 18"
STAMPING HORRIBLE

SWALE CUT
FD 9282

HOLEY MOLEY SAYS
"DON'T DIG BLIND"
IT'S THE LAW!
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
CALL TOLL FREE
PER INDIANA STATE LAW 15-89-1991.
IT IS AGAINST THE LAW TO EXCAVATE
WITHOUT NOTIFYING THE UNDERGROUND
LOCATION SERVICE TWO (2) WORKING
DAYS BEFORE COMMENCING WORK.

ASSUMED NORTH
SCALE: 1"=50'

This information was gathered for input into the
Hamilton County Geographic Information System
on 08/15/01. The information is not to be used as
an official record of the State.
Entry Date: 8-20-01
Entered by: SLW

KEITH LASH
REGISTERED
No. 9800085
STATE OF INDIANA
PROFESSIONAL ENGINEER

GENERAL NOTES

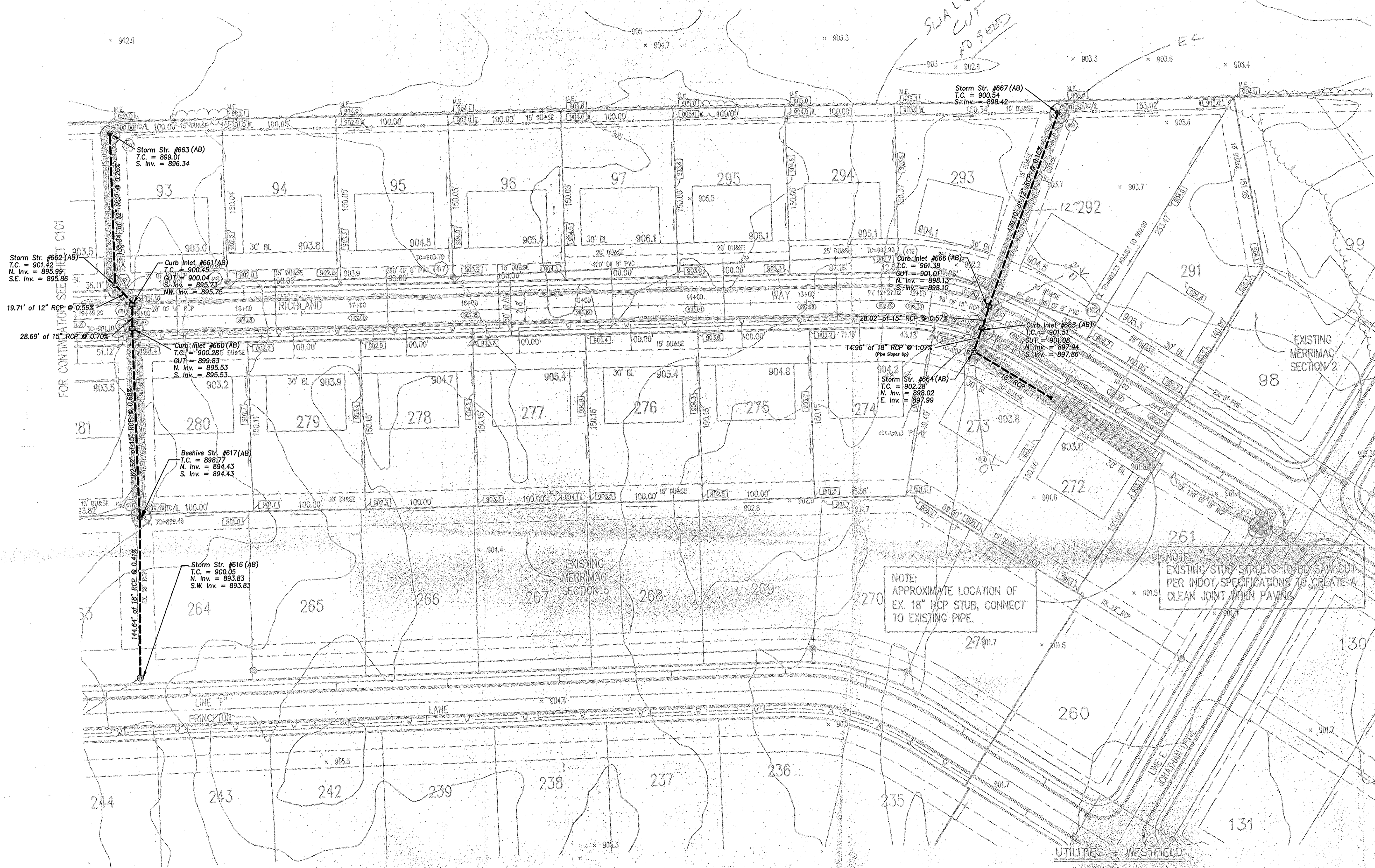
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- WATER MAIN VALVES SHALL NOT BE LOCATED UNDER STREET PAVEMENT.

THE SCHNEIDER CORPORATION
12821 E. New Market Street
Suite 100
Carmel, IN 46032
Telephone: 317.669.8112
Fax: 317.626.8410
www.schneidercorp.com

Architecture
Civil Engineering
Environmental Engineering
Geotechnical Services
GIS - LIS
Home Builder Services
Interior Design
Land Surveying
Landscape Architecture
Transportation Engineering

Schneider

MERRIMAC SECTION 6
WESTFIELD, INDIANA
MERRIMAC CORP.
CARMEL, INDIANA



NOTE:
EXISTING STUB STREETS TO BE SAW CUT
PER INDOT SPECIFICATIONS TO CREATE A
CLEAN JOINT WHEN PAVING.

LEGEND

- Existing Storm Sewer
- New Storm Sewer
- Existing Sanitary Sewer
- New Sanitary Sewer
- Existing Contour
- Existing Elevation
- New Pavement Grade
- All Other Finish Grades
- Match Existing Grades
- Corrected Grades
- Storm Structure Number
- Sanitary Structure Number
- Denotes Elevation and Approximate Pad Size
- Flow Arrow
- 4" Subsurface Drain
- Shade (C)
- Water Main
- Denotes Pad with 2' or More of Fill After Stripping
- Existing Trees
- Existing Gas Main
- Existing Telephone
- Existing Water Main
- Existing Fireline
- Existing Overhead Utilities

BENCHMARK

U.S.G.S. 93 RHP (185)
BRONZE TABLET SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 148th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
(ELEVATION = 903.373)

Storm Structure Table

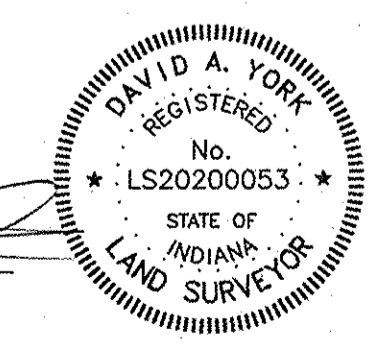
Str. #	Type	T.C.	Lat.	Long.	Invert(s)
EX10	BEEHIVE	897.95	88.2412 W	89.3516 N	7.5
650	MANHOLE	901.30	88.3312 W	89.3312 N	7.0
651	INLET	900.85	88.6112 W	89.6412 N	7.0
652	INLET	900.65	88.9012 W	89.9012 N	7.0
653	BEEHIVE	900.50	88.9012 W	89.9012 N	7.0
EX16	BEEHIVE	899.10	88.3112 W	89.9515 N	7.0
654	INLET	900.85	88.6112 W	89.6412 N	7.0
655	INLET	900.85	88.6112 W	89.6412 N	7.0
656	INLET	900.85	88.6112 W	89.6412 N	7.0
657	INLET	900.85	88.6112 W	89.6412 N	7.0
EX17	BEEHIVE	899.40	88.2112 W	89.4915 N	7.5
658	INLET	901.10	88.0915 W	89.0915 N	7.0
659	INLET	901.10	88.0915 W	89.0915 N	7.0
660	MANHOLE	901.70	88.3312 W	89.3312 N	7.0
661	BEEHIVE	900.90	89.7012 W	89.7012 N	7.5
662	MANHOLE	900.90	89.7012 W	89.7012 N	7.5
663	BEEHIVE	900.90	89.7012 W	89.7012 N	7.5
664	MANHOLE	900.90	89.7012 W	89.7012 N	7.5
EX18	INLET	902.00	89.7012 W	89.7012 N	7.5
665	INLET	901.80	89.7012 W	89.7012 N	7.5
666	INLET	901.80	89.7012 W	89.7012 N	7.5
667	BEEHIVE	901.80	89.7012 W	89.7012 N	7.5

- INDIANA GAS COMPANY
505 West Cr. 125 S.
Lebanon, Indiana 46032
(317) 455-6400
Attn: Jeff Aulry
TELEPHONE
- AMERITECH
6288 North College Avenue
Indianapolis, Indiana 46220
(317) 292-0216
Attn: Jane Macveigher
- SANITARY SEWERS AND WATER
HAMILTON WESTERN UTILITIES
- 1330 Creighton Pass
Carmel, Indiana 46032
(317) 646-6882
Attn: Doug Wilberg
ELECTRIC
- P.O. Box 876
Carmel, Indiana 46032
(317) 591-3341
Attn: Mark La Beer
- Utility Hotline: within Indiana 1-800-382-5544
outside Indiana 1-800-428-5200

RECORD DRAWING

STORM SEWER AS-BUILTS
STRUCTURES AND PIPE ONLY
JULY 6, 2009

DAVID A. YORK, REG. L.S. - #20020053



THE ELEVATIONS FOR THE STORM STRUCTURES AND PIPE ARE BASED ON THE NAVD 1988. THE DESIGN ELEVATIONS SHOWN IN THE CONSTRUCTION PLANS WERE BASED ON THE NGVD 1929. THE DIFFERENCE BETWEEN THESE TWO DATUMS HAS BEEN CALCULATED TO BE -0.37 FEET IN THIS AREA.

THE PERMANENT VERTICAL BENCHMARK REFERENCED FOR THESE AS-BUILT DRAWINGS WAS "LEE 4 RESET" ESTABLISHED BY THE DIVISION OF WATER OF THE INDIANA DEPARTMENT OF NATURAL RESOURCES.

ELEVATION - 910.898 (NGVD 1929)
ELEVATION - 910.531 (NAVD 1988)

HOLEY MOULTY SAYS
"DON'T DIG BLIND"
 IT'S THE LAW
 CALL & ORDER PANS BEFORE YOU DIG
 1-800-382-5544
 CAL. REG. 8864
 REG. DESIGNER STATE LICENSE 69-1081
 IF IT IS ADJACENT TO THE EXISTING MAIN
 WATER MAIN OR THE UNDERGROUND
 LOCALITY SERVICE LINE, A WARNING
 IS TO BE PLACED ON THE MAIN.

GENERAL NOTES

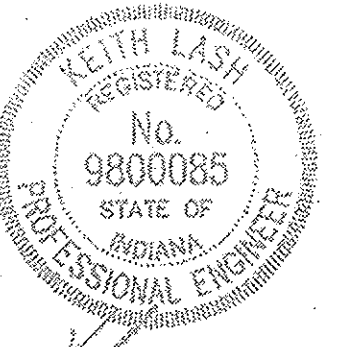
1. TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
2. ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.H.A. STANDARDS FOR WORKER SAFETY.
3. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL UTILITY LOCATIONS BEFORE CONSTRUCTION BEGINS.
4. CONTRACTORS SHALL MINIMIZE DAMAGE TO EXISTING TREES.

LEGEND/DETAILS

Symbol	Description
	Bedding Detail - Reinforced Concrete Pipe (RCP)
	Rish Core Inlet Detail
	Washbox Inlet Detail
	Storm Manhole Detail
	Precast Concrete End Section
	Riser Detail @ End Section

NOTE

This information was gathered for input into the system GIS. This document is considered an official record of the GIS.
 Entry Date: 8/20/09
 Entered By: SLM



BENCHMARK
 U.S.G.S. 83 RHP (1851)
 BRONZE TABLET SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 148th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
 (ELEVATION = 803.573)

Schneider
 THE SCHNEIDER CORPORATION
 12821 E. New Market Street
 Suite 100
 Carmel, IN 46404
 Telephone: 317.989.8112
 Fax: 317.926.6410
 www.schneidercorp.com

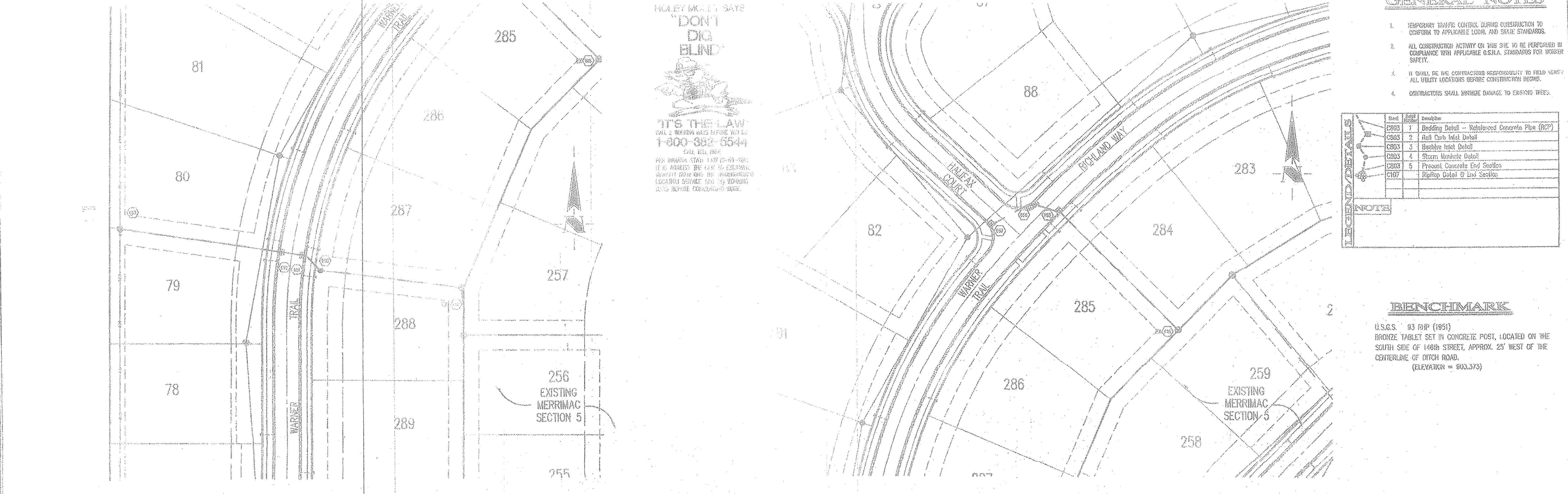
Architecture
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 GIS & LIS
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 Interior Design
 Land Surveying
 Landscape Architecture
 Transportation Engineering

MERRIMAC SECTION 6
 WESTFIELD, INDIANA
 MERRIMAC CORP.
 CARMEL, INDIANA

FILED
 SEP 12 2009
 OFFICE OF HAMILTON COUNTY SURVEYOR

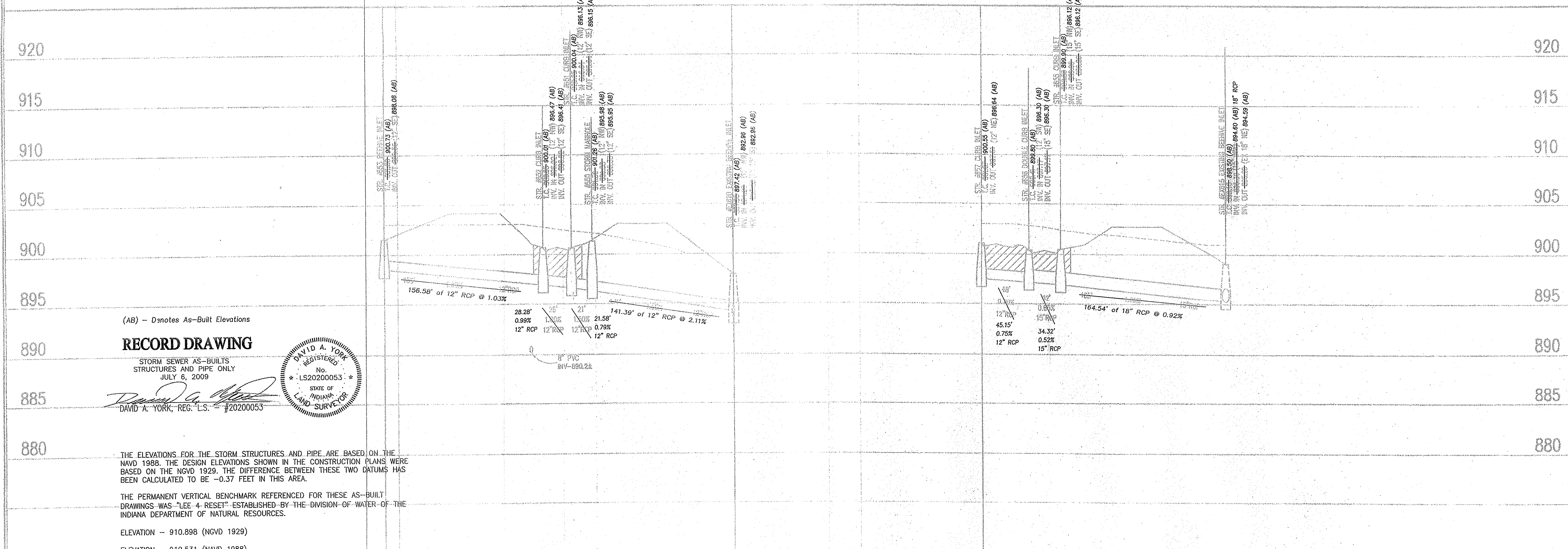
DATE: 8/15/09	PROJECT NO.: 1045.004
DRAWN BY: MG	CHECKED BY:
SHEET TITLE: STORM SEWER PLAN & PROFILE	
DRAWING FILE: H:\GIS\DATA\PROJECTS\1045\1045-004.dwg	
DESIGNER: MERRIMAC	
CHECKER: MERRIMAC	
REVISIONS:	

SHEET NO.: **C601**



STORM SEWER PLAN

SCALE: 1"=50'



(AB) - Denotes As-Built Elevations

RECORD DRAWING

STORM SEWER AS-BUILTS
 STRUCTURES AND PIPE ONLY
 JULY 6, 2009



THE ELEVATIONS FOR THE STORM STRUCTURES AND PIPE ARE BASED ON THE NAVD 1988. THE DESIGN ELEVATIONS SHOWN IN THE CONSTRUCTION PLANS WERE BASED ON THE NGVD 1929. THE DIFFERENCE BETWEEN THESE TWO DATUMS HAS BEEN CALCULATED TO BE -0.37 FEET IN THIS AREA.

THE PERMANENT VERTICAL BENCHMARK REFERENCED FOR THESE AS-BUILT DRAWINGS WAS "LEE 4 RESET" ESTABLISHED BY THE DIVISION OF WATER OF THE INDIANA DEPARTMENT OF NATURAL RESOURCES.

ELEVATION - 910.898 (NGVD 1929)
 ELEVATION - 910.531 (NAVD 1988)

STORM SEWER PROFILE

LEGEND

	Existing Grade
	New Grade
	Groundwater Elevation

SCALE: HORZ.: 1"=50'
 VERT.: 1"=5'

HOLEY MOLEY & CO.

DON'T DIG BLIND



IT'S THE LAW! CALL 2 ADVISORY DAYS BEFORE YOU DIG 1-800-382-8544

PER INDIANA STATE LAW IT IS ILLEGAL TO DIG WITHOUT A CALL BEFORE YOU DIG NOTICE. LOCATING SERVICE LINES 10-15 BUSINESS DAYS BEFORE DIGGING IS THE LAW.

GENERAL NOTES

- 1. TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
2. ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.A. STANDARDS FOR WORKER SAFETY.
3. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL UTILITY LOCATIONS BEFORE CONSTRUCTION BEGINS.
4. CONTRACTORS SHALL REPAIR DAMAGE TO EXISTING TREES.

LEGEND/DETAILS

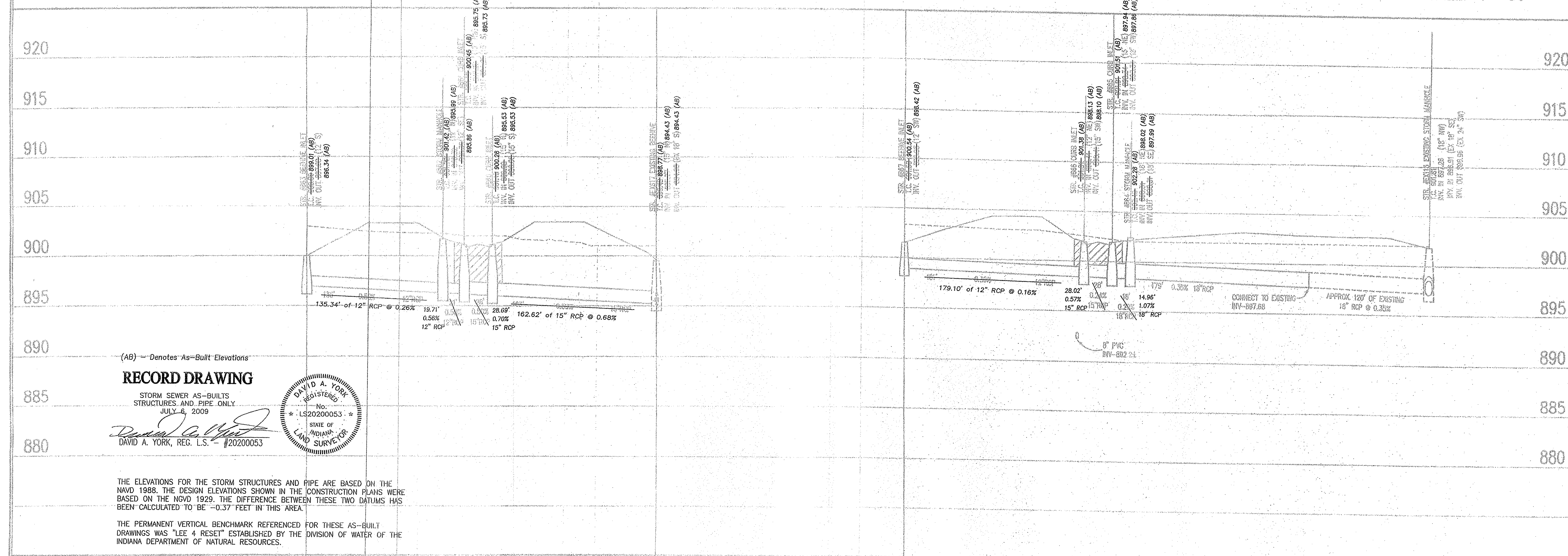
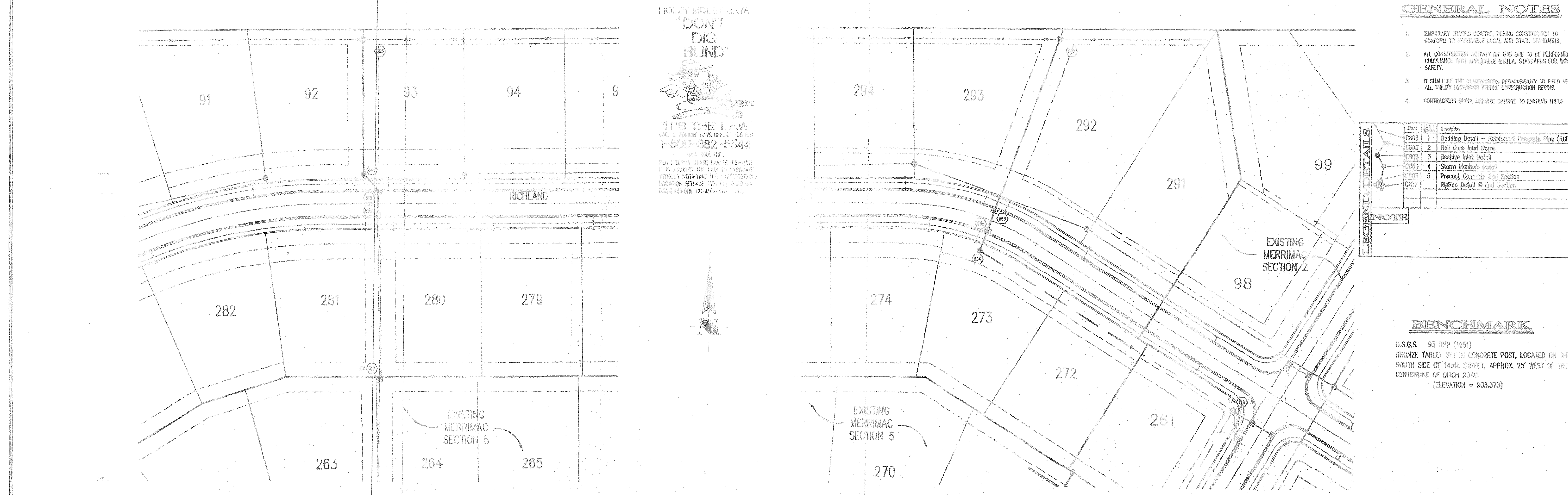
Table with columns: Item, Description, and Notes. Includes items like Building Detail - Reinforced Concrete Pipe (RCP), Manhole Detail, Storm Manhole Detail, etc.

BENCHMARK

U.S.G.S. 93 RHP (881) BRONZE TABLET SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX 25' WEST OF THE CENTERLINE OF 146th ROAD. (ELEVATION = 803.373)

STORM SEWER PLAN

SCALE: 1"=50'

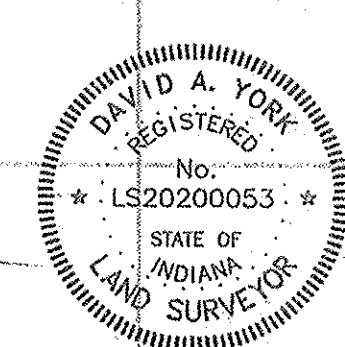


(AB) - Denotes As-Built Elevations

RECORD DRAWING

STORM SEWER AS-BUILTS STRUCTURES AND PIPE ONLY JULY 6, 2009

DAVID A. YORK, REG. L.S. - #20200053



THE ELEVATIONS FOR THE STORM STRUCTURES AND PIPE ARE BASED ON THE NAVD 1988. THE DESIGN ELEVATIONS SHOWN IN THE CONSTRUCTION PLANS WERE BASED ON THE NGVD 1929. THE DIFFERENCE BETWEEN THESE TWO DATUMS HAS BEEN CALCULATED TO BE -0.37 FEET IN THIS AREA.

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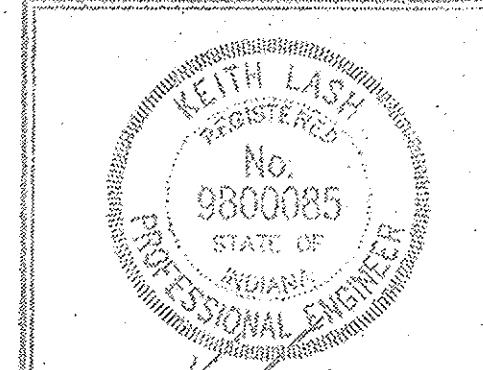
ELEVATION - 910.898 (NGVD 1929)

ELEVATION - 910.531 (NAVD 1988)

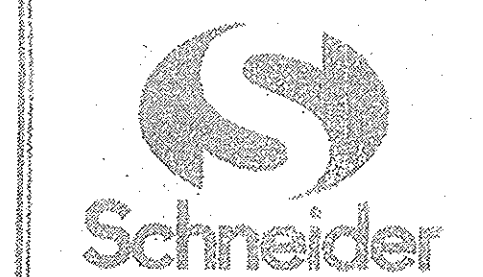
STORM SEWER PROFILE

LEGEND

SCALE: HORZ.: 1"=50' VERT.: 1"=5'



KEITH LASH REGISTERED PROFESSIONAL ENGINEER No. 9800085 STATE OF INDIANA



THE SCHNEIDER CORPORATION 12621 E. New Market Street Suite 100 Carmel, IN 46032 Telephone: 317.566.9112 Fax: 317.896.6410 www.schneidercorp.com

Architecture Civil Engineering Environmental Engineering Geotechnical Services GIS * LIS Home Builder Services Interior Design Land Surveying Landscape Architecture Transportation Engineering

MERRIMAC SECTION 6 WESTFIELD, INDIANA MERRIMAC CORP. CARMEL, INDIANA

FILED SEP 12 2009

DRAWN BY: MG PROJECT NO: 1045.004 SHEET TITLE: STORM SEWER PLAN & PROFILE

SHEET NO: C602

- SEC. 15-T18N-R3E -

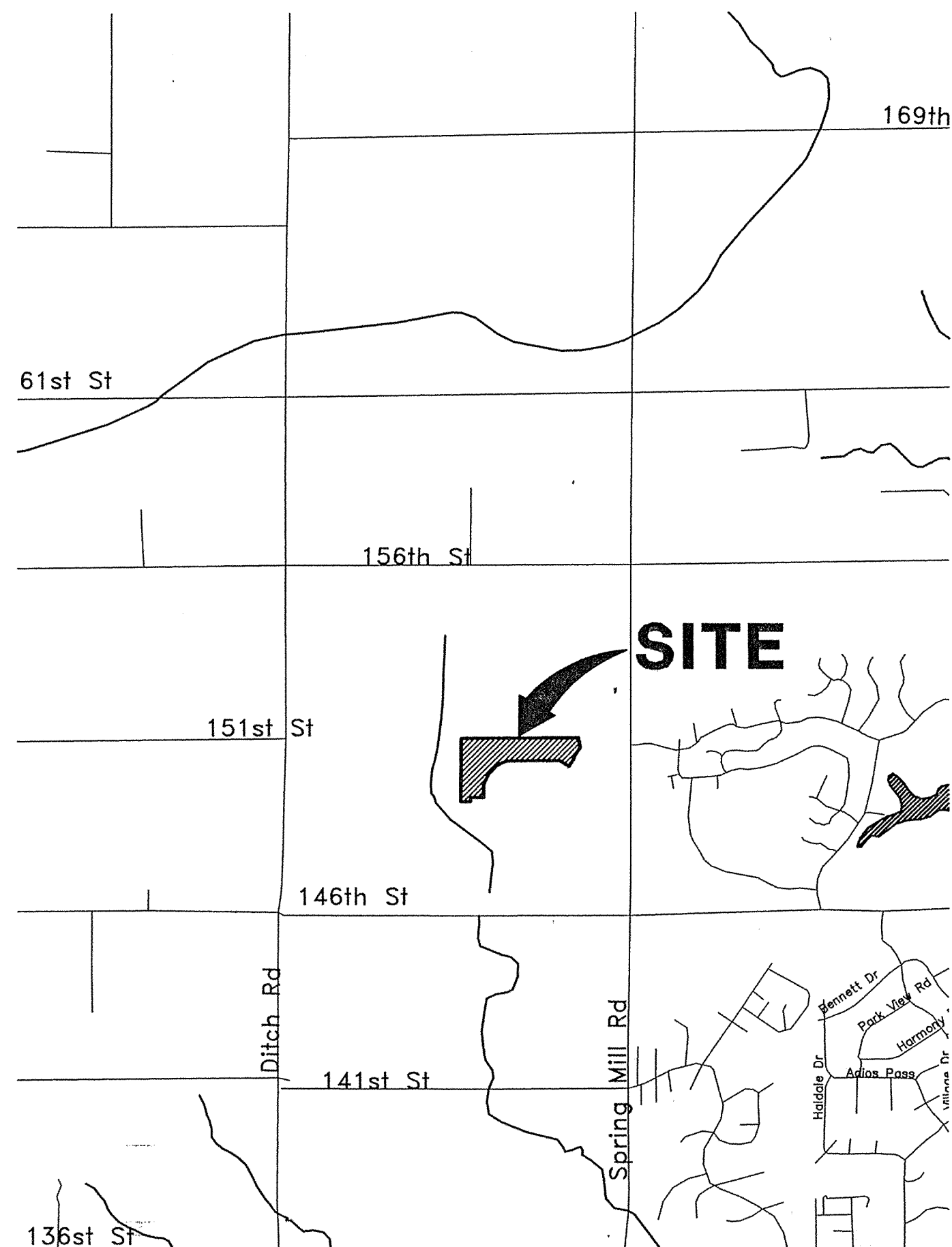
MERRIMAC SECTION 6

(CONSTRUCTION PLANS)
**HAMILTON COUNTY
 WESTFIELD, INDIANA**

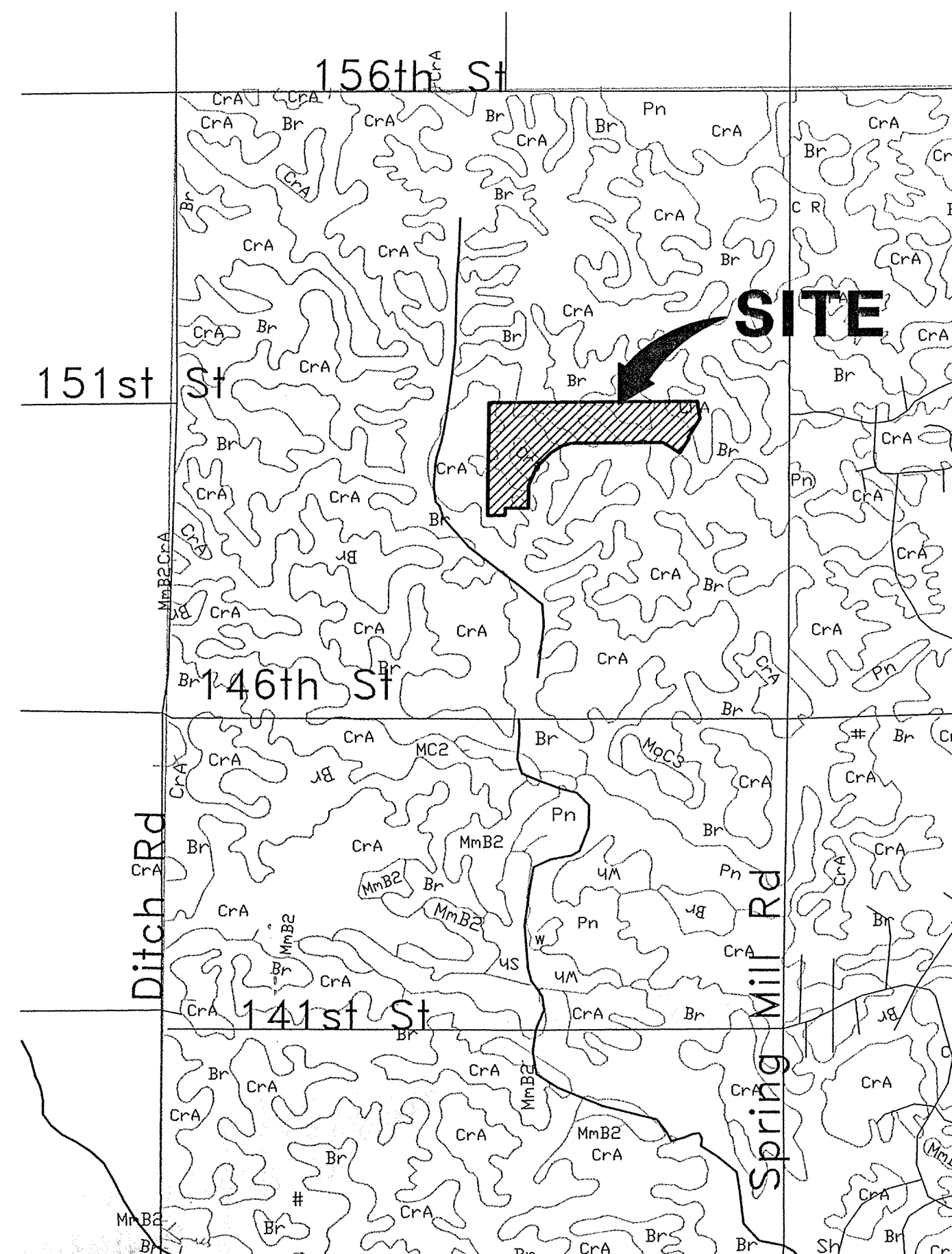
DEVELOPER:

MERRIMAC CORP.

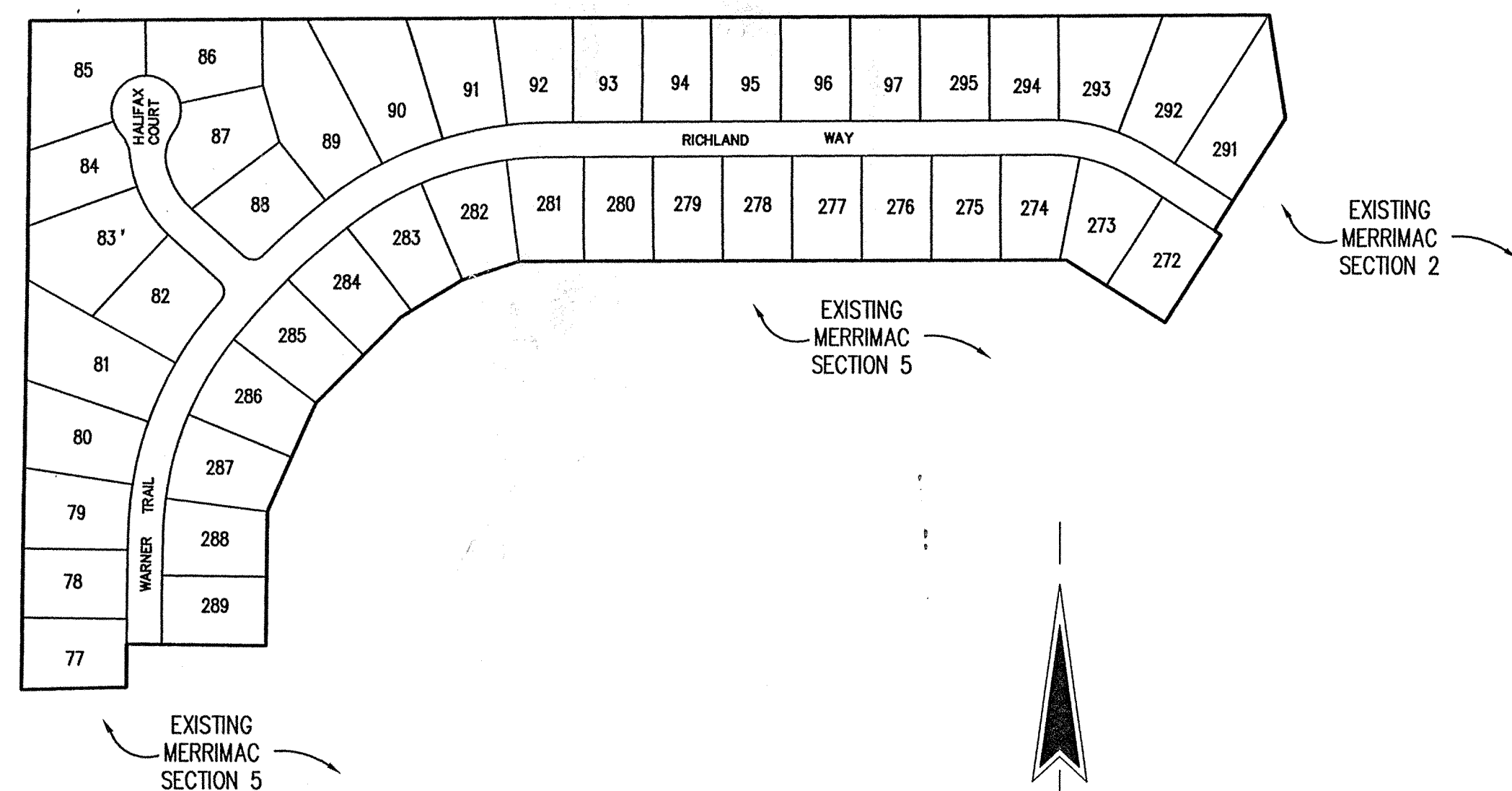
582 SOUTH RANGELINE ROAD
 CARMEL, INDIANA 46032
 (317) 844-5111



AREA MAP
 NOT TO SCALE



SOILS MAP
 NOT TO SCALE



SITE MAP
 SCALE: 1"=200'

INDEX	
SHEET No.	DESCRIPTION
C100	COVER SHEET
C101-C102	DEVELOPMENT PLAN
C103	EROSION CONTROL PLAN
C201-C202	STREET PLAN
C301	INTERSECTION DETAILS
C302	TRAFFIC CONTROL PLAN
C401-C402	SANITARY SEWER PLAN & PROFILE
C601-C602	STORM SEWER PLAN & PROFILE
C701	WATER DISTRIBUTION PLAN
C801	GENERAL DETAILS
C802-C803	HAMILTON COUNTY DETAILS
C804	EROSION CONTROL DETAILS
C805	WATER DETAILS & SPECIFICATIONS
C901	SPECIFICATIONS

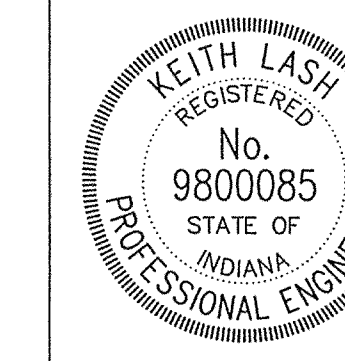
DESIGN SPEED
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 SEP 12 2001
 OFFICE OF HAMILTON COUNTY SURVEYOR

DATE: 8/15/01

SHEET
C100
 OF
 19

REVISIONS:		
DATE:	BY:	DESCRIPTION:
09/06/01	DCC	C101, C102, C103, C301, C302, C401, C402, C601, C602, C701

CERTIFIED BY: KEITH LASH

E-MAIL ADDRESS: klash@schneidercorp.com

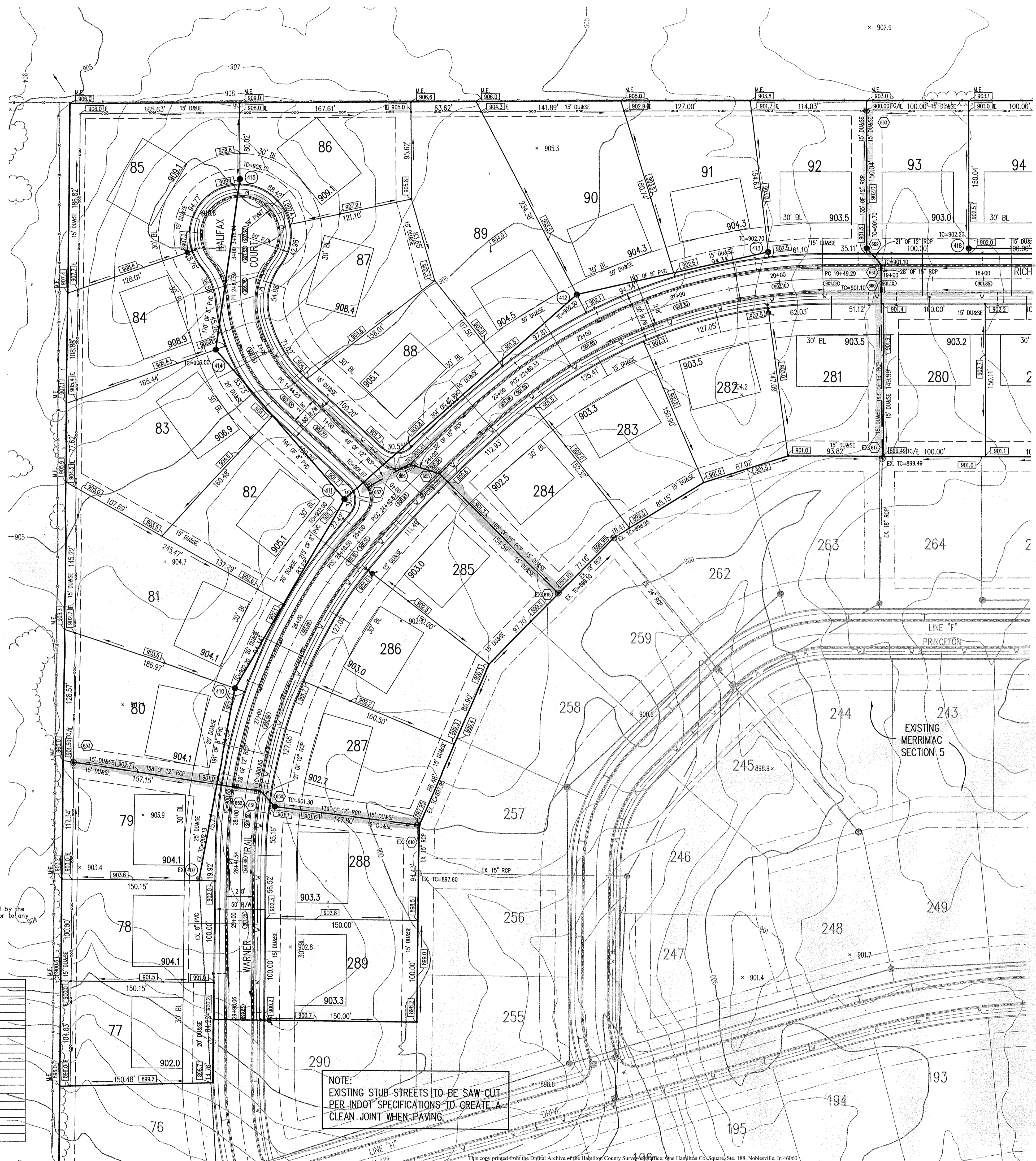
PROJECT ENGINEER: _____

CHECKED BY: _____ DATE CHECKED: _____

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JOB No. (1045.004)



HOLEY MOLEY SAYS
"DON'T DIG BLIND"

"IT'S THE LAW"
 CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
 CALL TOLL FREE
 PER INDIANA STATE LAW 15-69-1991,
 IT IS AGAINST THE LAW TO EXCAVATE
 WITHOUT NOTIFYING THE UNDERGROUND
 LOCATION SERVICE TWO (2) WORKING
 DAYS BEFORE COMMENCING WORK.

GENERAL NOTES

- ALL GRADES AT BOUNDARY SHALL MEET EXISTING GRADES.
- IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES FOR PROPER STAKE LOCATIONS FOR EACH UTILITY BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER OR THE ENGINEER OF ANY CHANGES, OMISSIONS, OR ERRORS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.
- STANDARD SPECIFICATIONS FOR HAMILTON WESTERN UTILITIES SHALL APPLY FOR ALL SANITARY SEWERS AND SPECIFICATIONS FOR HAMILTON COUNTY SURVEYOR SHALL APPLY FOR ALL STORM SEWERS.
- ANY PART OF THE SANITARY OR STORM SEWER TRENCHES RUNNING UNDER PAVED AREAS TO BE BACKFILLED WITH GRANULAR MATERIAL.
- THE SIZE AND LOCATION OF EXISTING UTILITIES SHOWN ARE PER INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES. ALL UTILITY COMPANIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION FOR FIELD LOCATION OF SERVICES.
- SERVICE WALKS SHALL BE NON-REINFORCED CONCRETE 4" THICK AND 4' IN WIDTH.
- 4" CONCRETE SERVICE WALK ACROSS FRONTAGE OF EACH LOT TO BE CONSTRUCTED BY OTHERS.
- EXPANSION JOINTS AREA TO BE PLACED AT ALL WALK INTERSECTIONS AND BETWEEN WALKS AND PLATFORMS. SIDEWALK SCORES ARE TO BE EQUALLY SPACED BETWEEN EXPANSION JOINTS, CONTRACTION JOINTS AND PERPENDICULAR TO SIDEWALKS AT 5' INTERVALS OR LESS WITH A CONTRACTION JOINT EVERY 20' OR LESS.
- TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
- ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.H.A. STANDARDS FOR WORKER SAFETY.
- CONTRACTOR SHALL MINIMIZE DAMAGE TO EXISTING TREES.
- REMOVE AND BACKFILL ALL AREAS WHERE ANY FIELD TILE CROSSES PROPOSED HOUSE PADS. ALL FIELD TILES INTERCEPTED TO BE PERPETUATED INTO STORM SEWER SYSTEM OR LAKE. THE SUBCONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER IN ANY CIRCUMSTANCES WHERE THIS CANNOT BE ACCOMPLISHED.
- ALL FILL AREAS SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY (ASTM D-1557). FILL UNDER THE FOOTING SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY (ASTM D-1557).
- DECORATIVE SIGNS, SPRINKLER SYSTEMS, TREES, LANDSCAPING MOUNDS, LIGHT POLES OR OTHER SUCH AMENITIES ARE NOT PERMITTED IN THE RIGHT OF WAY.
- WATER MAIN VALVES SHALL NOT BE LOCATED UNDER STREET PAVEMENT.

LEGEND

- Existing Storm Sewer
- New Storm Sewer
- Existing Sanitary Sewer
- New Sanitary Sewer
- Existing Contour
- Existing Elevation
- New Pavement Grade
- All Other Finish Grades
- Match Existing Grades
- Corrected Grades
- Storm Structure Number
- Sanitary Structure Number
- Denotes Elevation and Approximate Pad Size
- Flow Arrow
- 4" Subsurface Drain Swale (R)
- Water Main
- Denotes Pad with 2' or More of Fill After Stripping
- Existing Trees
- Existing Gas Main
- Existing Telephone
- Existing Water Main
- Existing Flowline
- Existing Overhead Utilities

BENCHMARK

U.S.G.S. 93 RHP (1951)
 BRONZE TABLE SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
 (ELEVATION = 903.373)

UTILITIES - WESTFIELD

- GAS**
 Indiana Gas Company
 505 West Cr. 125 S.
 Lebanon, Indiana 46052
 (317) 452-6456
 Attn: Jeff Autry
 TELEPHONE
- CABLE TV**
 Jones Interco
 516 E. Cornal Drive
 Carmel, Indiana 46032
 (317) 844-8877
- SMALLTECH**
 5858 North College Avenue
 Indianapolis, Indiana 46220
 (317) 252-4275
 Attn: Jana Messinger
- SANITARY SEWERS AND WATER**
 HAMILTON WESTERN UTILITIES
 1350 Grayhound Pass
 Carmel, Indiana 46032
 (317) 846-6882
 Attn: Beau Wilong
- ELECTRIC**
 P. S. I. Energy
 P.O. Box 876
 Carmel, Indiana 46032
 (317) 581-3041
 Attn: Mark La Barr
- Utility Hotline: within Indiana 1-800-382-5544
 outside Indiana 1-800-428-5200

Storm Structure Table

Str.#	Type	T.C.	Invert(s)
EX610	BEEHIVE	897.95	894.24(12)°W, 893.55(15)°S
650	MANHOLE	901.30	896.33(12)°E, 896.33(12)°W
651	INLET	900.65	896.64(12)°SE, 896.64(12)°W
652	INLET	900.65	896.92(12)°E, 896.92(12)°W
653	BEEHIVE	901.50	898.50(12)°E
EX615	BEEHIVE	898.10	893.30(15)°NW, 895.20(18)°NE
655	INLET	900.50	896.95(15)°SE, 896.95(15)°W
656	INLET	900.41	897.17(15)°SE, 897.17(12)°SW
657	INLET	901.07	897.51(12)°NE
EX617	BEEHIVE	898.49	895.27(15)°N, 894.96(18)°S
660	INLET	901.10	896.08(15)°S, 896.08(15)°W
661	INLET	901.10	896.22(15)°S, 896.22(12)°W
662	MANHOLE	901.70	896.33(12)°SE, 896.33(12)°N
663	BEEHIVE	900.00	897.00(12)°S
664	MANHOLE	902.40	898.31(18)°NE, 898.31(18)°SE
EX613	INLET	902.00	897.35(18)°NW
665	INLET	901.91	898.34(18)°SE, 898.34(15)°NE
666	INLET	901.91	898.41(15)°SW, 898.41(12)°NE
667	BEEHIVE	901.50	898.59(12)°SW

NOTE:
 EXISTING STUB-STREETS TO BE SAW CUT
 PER INDOT SPECIFICATIONS TO CREATE A
 CLEAN JOINT WHEN PAVING.

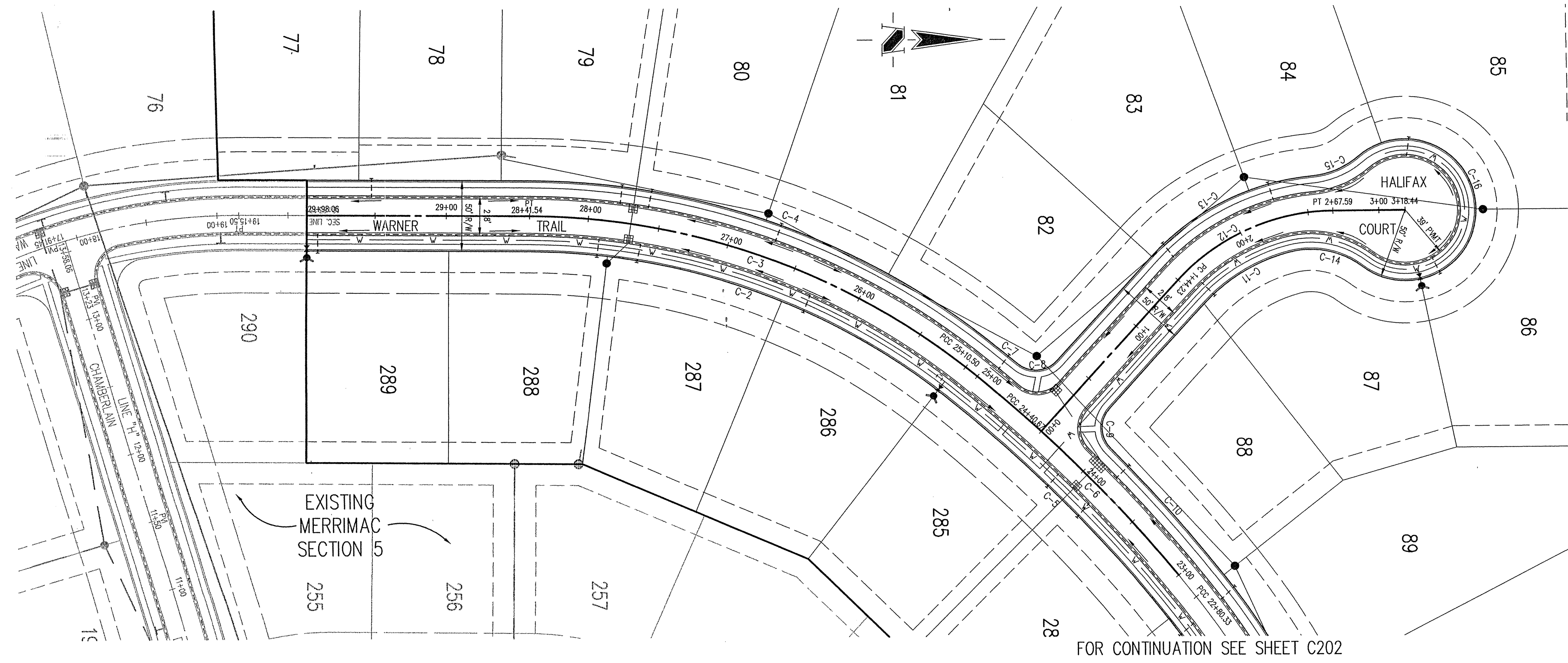
FOR CONTINUATION SEE SHEET C102

KEITH LASH
 Registered Professional Engineer
 No. 9800085
 STATE OF INDIANA
 DATE: 8/15/01
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 Transportation Engineering

MERRIMAC SECTION 6
 WESTFIELD, INDIANA
 MERRIMAC CORP.
 CARMEL, INDIANA
 FILED
 SEP 12 2001
 DEPARTMENT OF HAMILTON COUNTY SURVEYOR

DATE: 8/15/01 PROJECT NO.: 1045.004
 DRAWN BY: MG CHECKED BY:
 SHEET TITLE: DEVELOPMENT PLAN
 DRAWING FILES: N:\1045\004\DWG\C101.DWG
 XREF: 0005.DWG
 XREF: 02EX-BS.DWG
 XREF: 02EX-BS.DWG
 XREF: 1045TOP.DWG
 SHEET NO.:
C101



HOLEY MOLEY SAYS "DON'T DIG BLIND"

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CALL TOLL FREE

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

Sheet	Detail	Description
C801	1,2	Street Cross Section Details
C801	8	Concrete Sidewalk Detail
C801	10	Sidewalk Ramp For Handicapped Detail
C801	4,7	Curb Detail
C801	6	Pipe Underdrain Detail
C301		Intersection and Cul-de-sac Details

NOTE: All Streets to be 28' in width unless otherwise noted.
All Rights-of-way to be 50' in width unless otherwise noted.

- LEGEND**
- TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
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 - IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL UTILITY LOCATIONS BEFORE CONSTRUCTION BEGINS.
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CURVE DATA TABLE

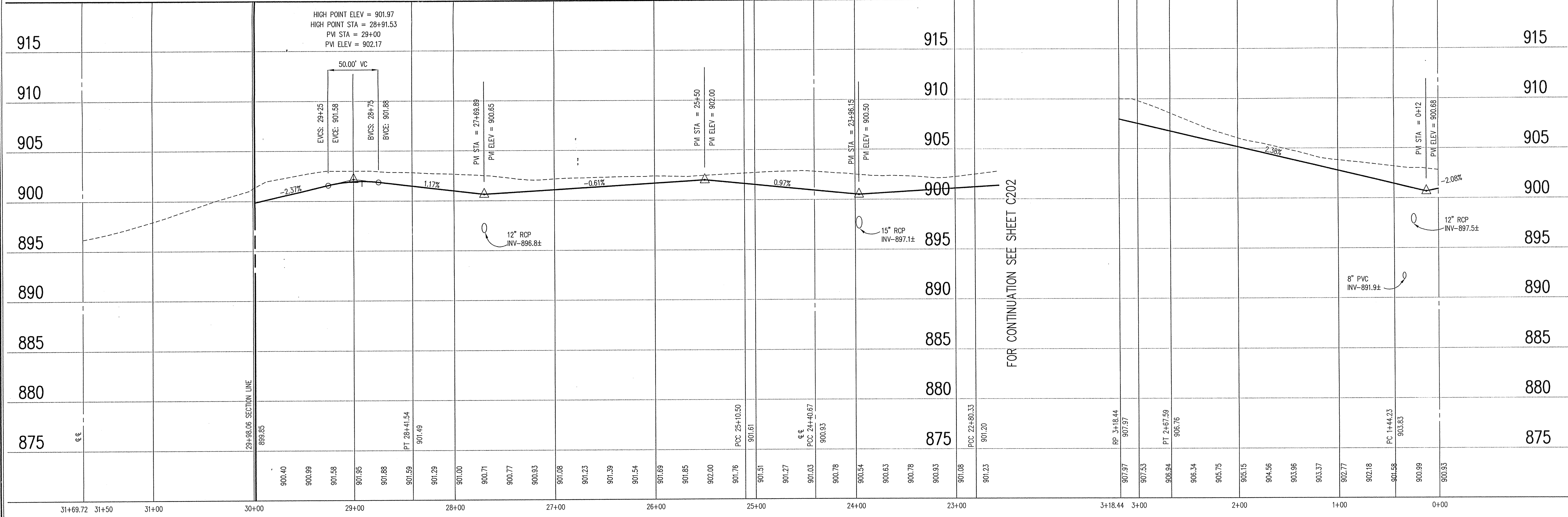
CURVE	RADIUS	LENGTH	CHORD	BEARING	DELTA
C-1	440.00'	14.76'	14.76'	S00°25'12"E	1°55'21"
C-2	475.00'	314.49'	308.78'	S19°30'30"W	37°56'04"
C-3	500.00'	331.04'	325.03'	S19°30'30"W	37°56'04"
C-4	525.00'	347.59'	341.28'	S19°30'30"W	37°56'04"
C-5	575.00'	224.42'	223.92'	S45°04'10"W	1°11'16"
C-6	1000.00'	230.17'	229.66'	S45°04'10"W	1°11'16"
C-7	1025.00'	27.42'	27.42'	S39°14'30"W	1°31'58"
C-8	20.00'	30.55'	27.67'	N03°45'28"W	87°31'55"
C-9	20.00'	30.55'	27.67'	N88°23'27"E	87°31'55"
C-10	1025.00'	120.20'	120.13'	S48°18'13"W	6°43'08"
C-11	125.00'	71.02'	70.07'	S31°14'42"E	32°33'17"
C-12	150.00'	123.36'	119.92'	S23°57'47"E	47°07'17"
C-13	175.00'	129.01'	126.11'	S26°24'14"E	42°14'24"
C-14	60.00'	54.68'	52.81'	S11°08'27"W	52°31'12"
C-15	60.00'	36.88'	36.30'	N22°53'26"W	35°12'49"
C-16	50.00'	224.93'	223.85'	S88°22'36"W	25°14'45"
C-17	475.00'	314.49'	308.78'	S19°30'30"W	37°56'04"
C-18	500.00'	331.04'	325.03'	S19°30'30"W	37°56'04"
C-19	525.00'	347.59'	341.28'	S19°30'30"W	37°56'04"
C-20	225.00'	128.04'	126.32'	N74°06'01"W	32°36'15"
C-21	250.00'	142.26'	140.35'	N74°06'01"W	32°36'15"
C-22	275.00'	156.49'	154.39'	N74°06'01"W	32°36'15"

BENCHMARK

U.S.G.S. 93 RHP (1951)
BRONZE TABLET SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
(ELEVATION = 903.373)

STREET PLAN

SCALE: 1"=50'

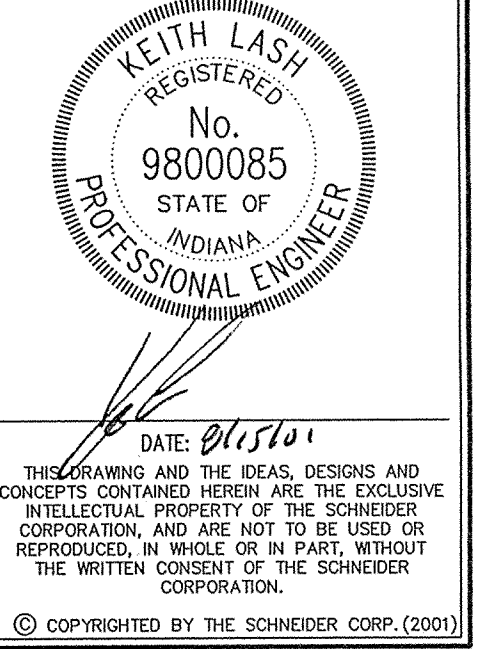


STREET PROFILE

LEGEND

	Existing Grade
	New Grade

SCALE: HORIZ.: 1"=50'
VERT.: 1"=5'



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WESTFIELD, INDIANA

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DATE: 8/15/01	PROJECT NO.: 1045.004
DRAWN BY: DCC	CHECKED BY:
SHEET TITLE: STREET PLAN & PROFILE	
DRAWING FILES: N:\1045\004\DWG\C201-202.DWG	
XREF: 085.DWG	
XREF: 02X-B5.DWG	
XREF: 05X-B5.DWG	
XREF: STREET.DWG	
SHEET NO.: C201	

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

LEGEND

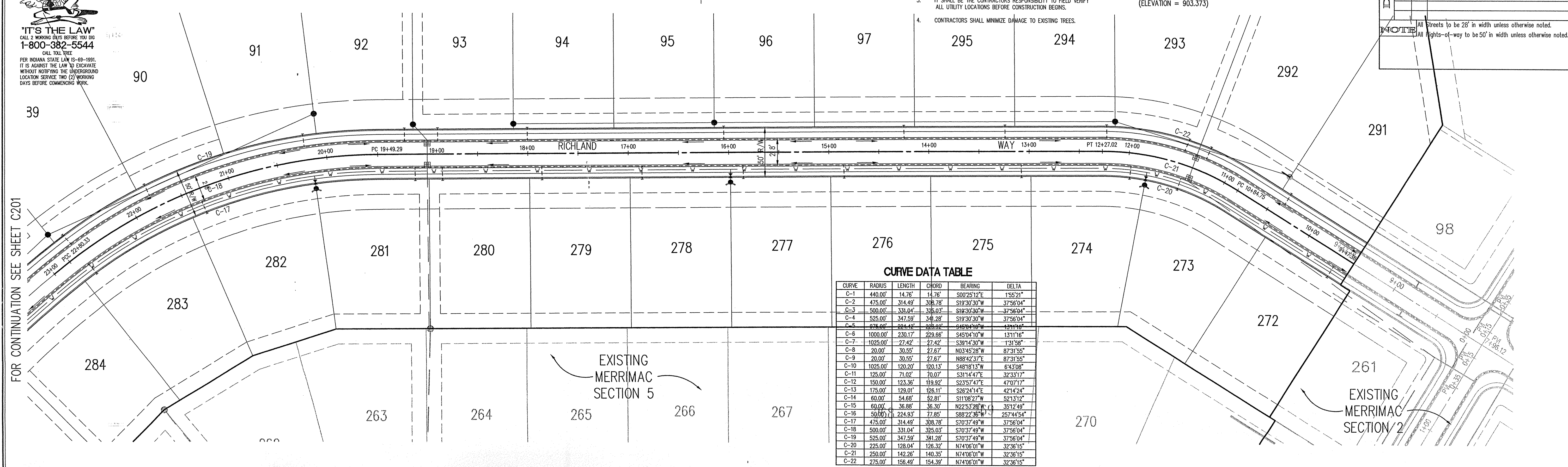
- 1. TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
2. ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.H.A. STANDARDS FOR WORKER SAFETY.
3. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL UTILITY LOCATIONS BEFORE CONSTRUCTION BEGINS.
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BENCHMARK

U.S.G.S. 93 RHP (1951) BRONZE TABLE SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD. (ELEVATION = 903.373)

DETAILS table with columns: Sheet, Detail, Description. Includes items like Street Cross Section Details, Concrete Sidewalk Detail, etc.

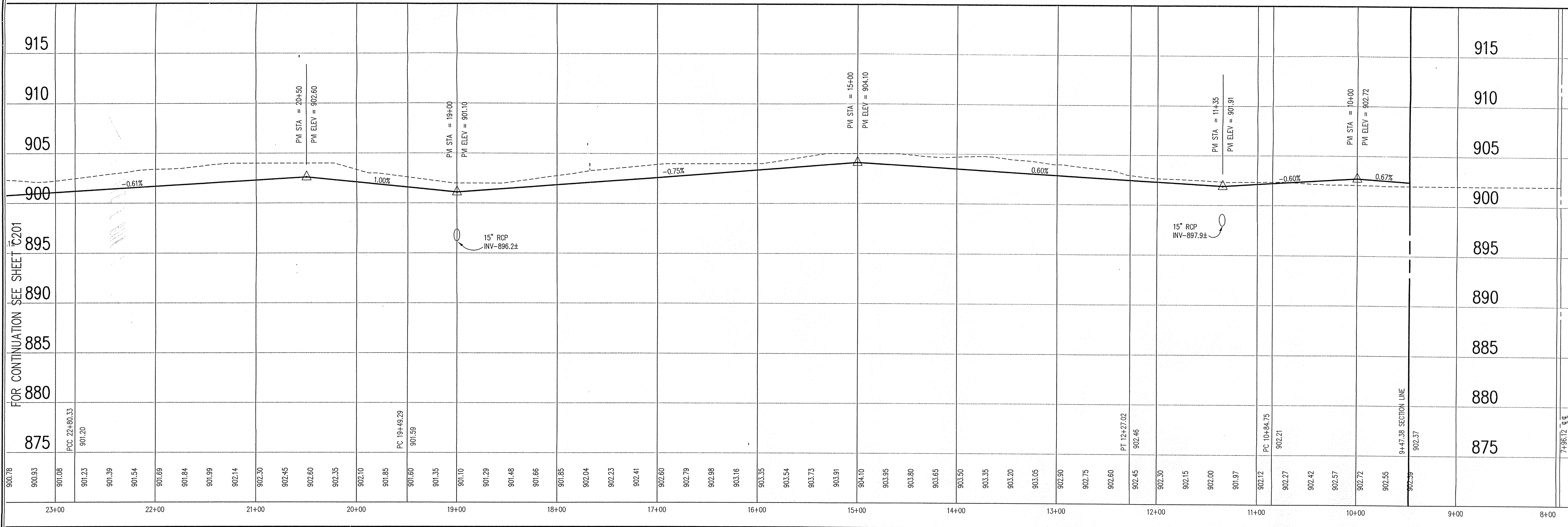
FOR CONTINUATION SEE SHEET C201



CURVE DATA TABLE with columns: CURVE, RADIUS, LENGTH, CHORD, BEARING, DELTA. Lists curves C-1 through C-22 with their respective geometric data.

STREET PLAN

SCALE: 1"=50'



STREET PROFILE

SCALE: HORZ.: 1"=50' VERT.: 1"=5'

LEGEND table with symbols for Existing Grade and New Grade.

REVISIONS:

Professional Engineer seal for Keith Lash, Registered Professional Engineer, No. 9800085, State of Indiana. Includes date 8/15/01 and copyright notice for Schneider Corp.

Schneider logo and company information: THE SCHNEIDER CORPORATION, 12821 E. New Market Street, Suite 100, Carmel, IN 46032. Lists services: Architecture, Civil Engineering, etc.

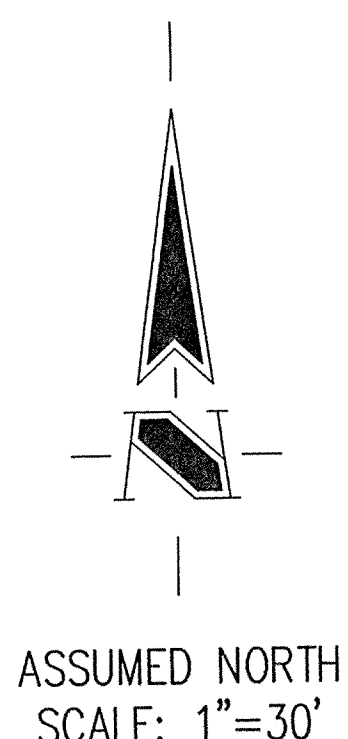
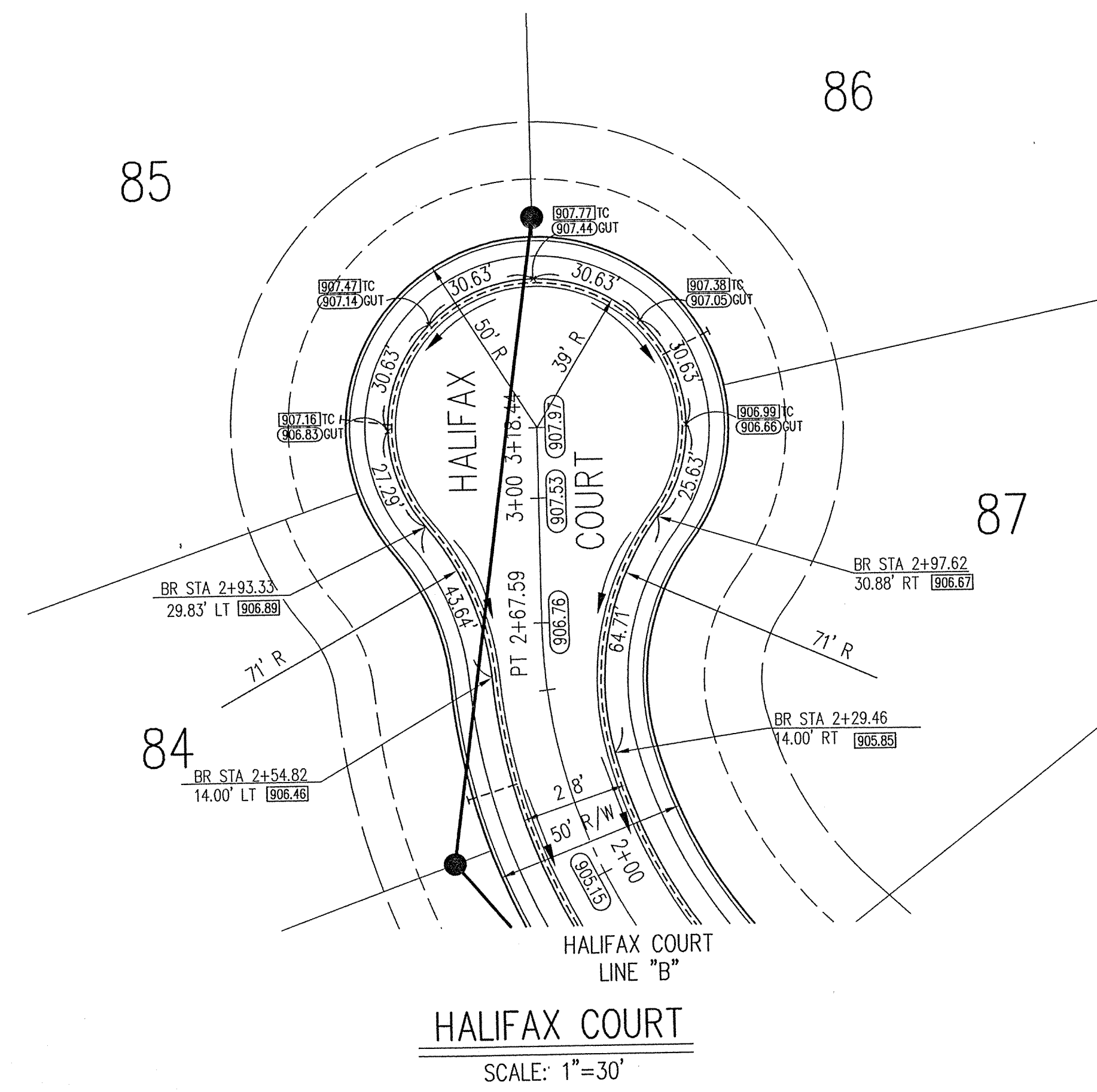
MERRIMAC SECTION 6 WESTFIELD, INDIANA. MERRIMAC CORP. CARMEL, INDIANA. FILED SEP 12 2001 OFFICE OF HAMILTON COUNTY SURVEYOR.

Table with columns: DATE, PROJECT NO., DRAWN BY, CHECKED BY. Includes date 8/15/01, project no. 1045.004, and sheet title STREET PLAN & PROFILE.

SHEET NO.: C202

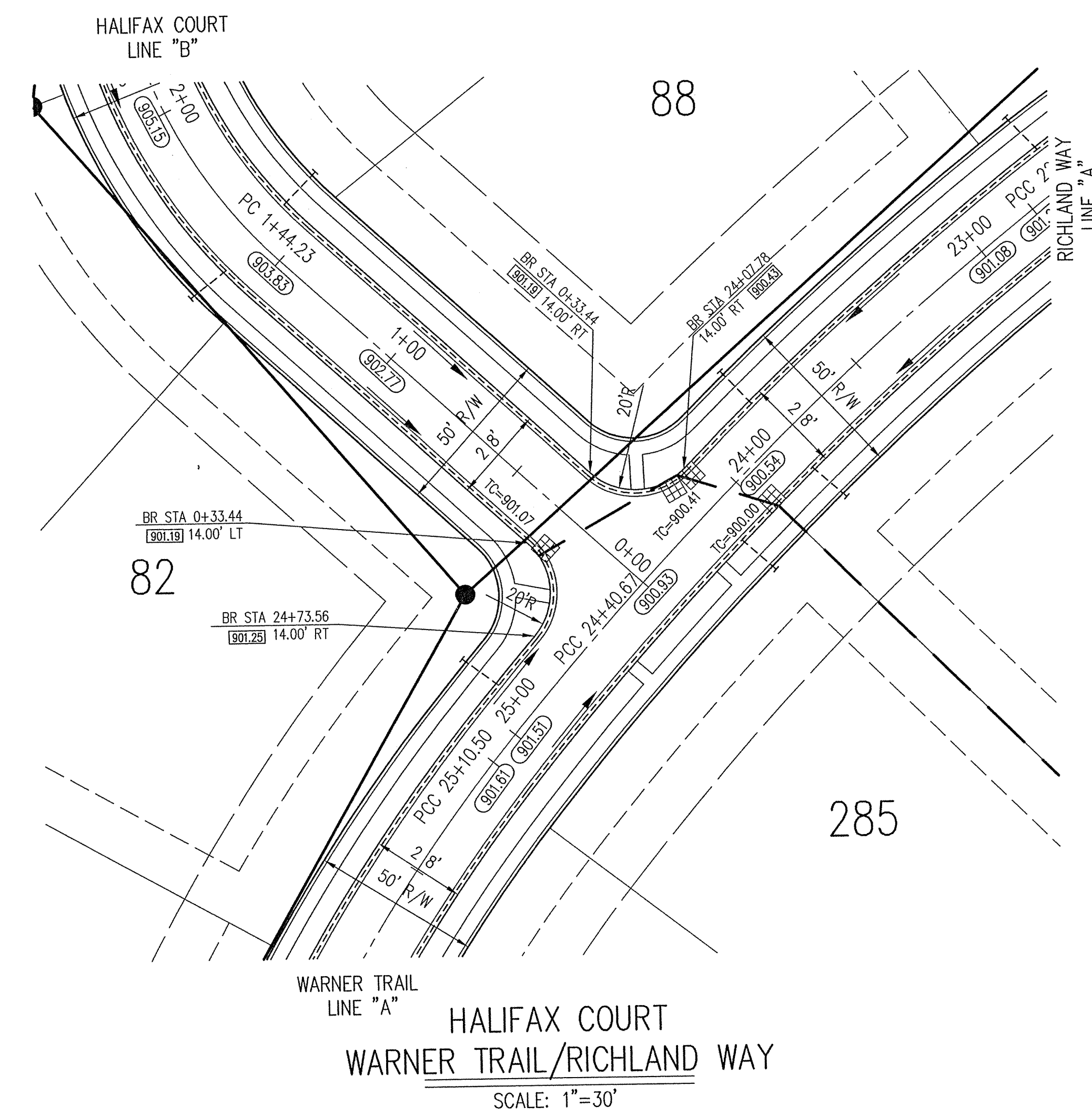
LEGEND

- - - Existing Storm Sewer
- - - New Storm Sewer
- - - Existing Sanitary Sewer
- - - New Sanitary Sewer
- - - Existing Contour
- x ELEV
DESC Existing Elevation
w/ description
- 000.00 New Pavement Grade
- 000.00 All Other Finish Grades
- Flow Arrow

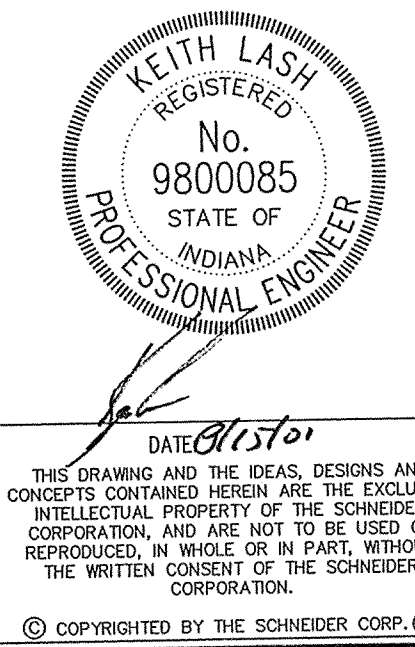


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REVISIONS:
1. DEC 01/02/01 REVISED PER TAC COMMENTS.



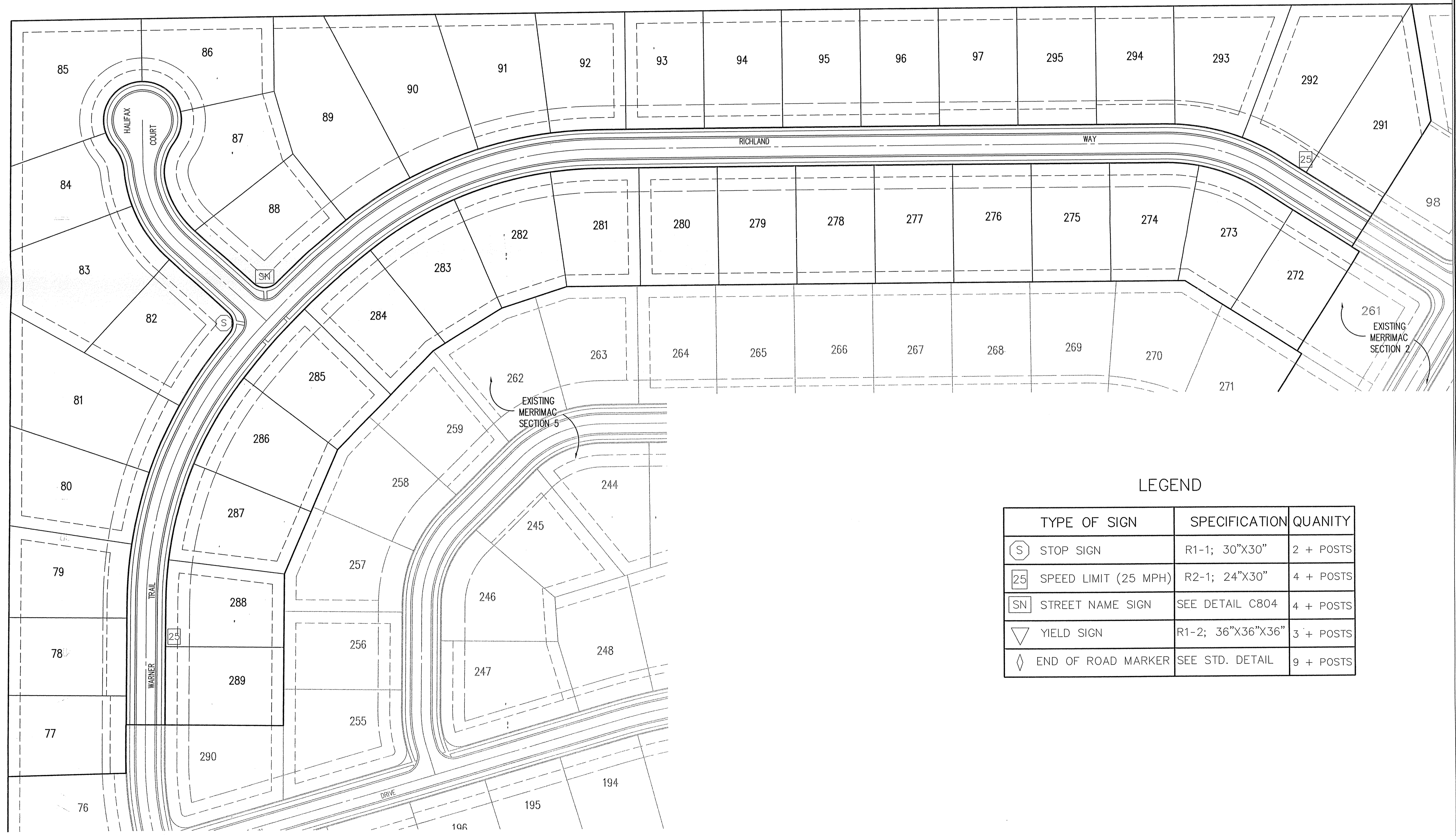
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DATE: 8/15/01	PROJECT NO.: 1045.004
DRAWN BY: MG	CHECKED BY:
SHEET TITLE: INTERSECTION & CUL-DE-SAC DETAILS	
DRAWING FILES: N:\1045\DRAWINGS\C301	
REF: 06BS.DWG	
SHEET NO.: C301	

ASSUMED NORTH
SCALE: 1"=60'

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LEGEND

TYPE OF SIGN	SPECIFICATION	QUANTITY
(S) STOP SIGN	R1-1; 30"X30"	2 + POSTS
25 SPEED LIMIT (25 MPH)	R2-1; 24"X30"	4 + POSTS
SN STREET NAME SIGN	SEE DETAIL C804	4 + POSTS
▽ YIELD SIGN	R1-2; 36"X36"X36"	3 + POSTS
◇ END OF ROAD MARKER	SEE STD. DETAIL	9 + POSTS

REVISIONS:
1. DEC 09/06/01, REVISED PER FAC COMMENTS.

KEITH LASI
REGISTERED
No. 9800085
STATE OF INDIANA
PROFESSIONAL ENGINEER
DATE: 08/15/01
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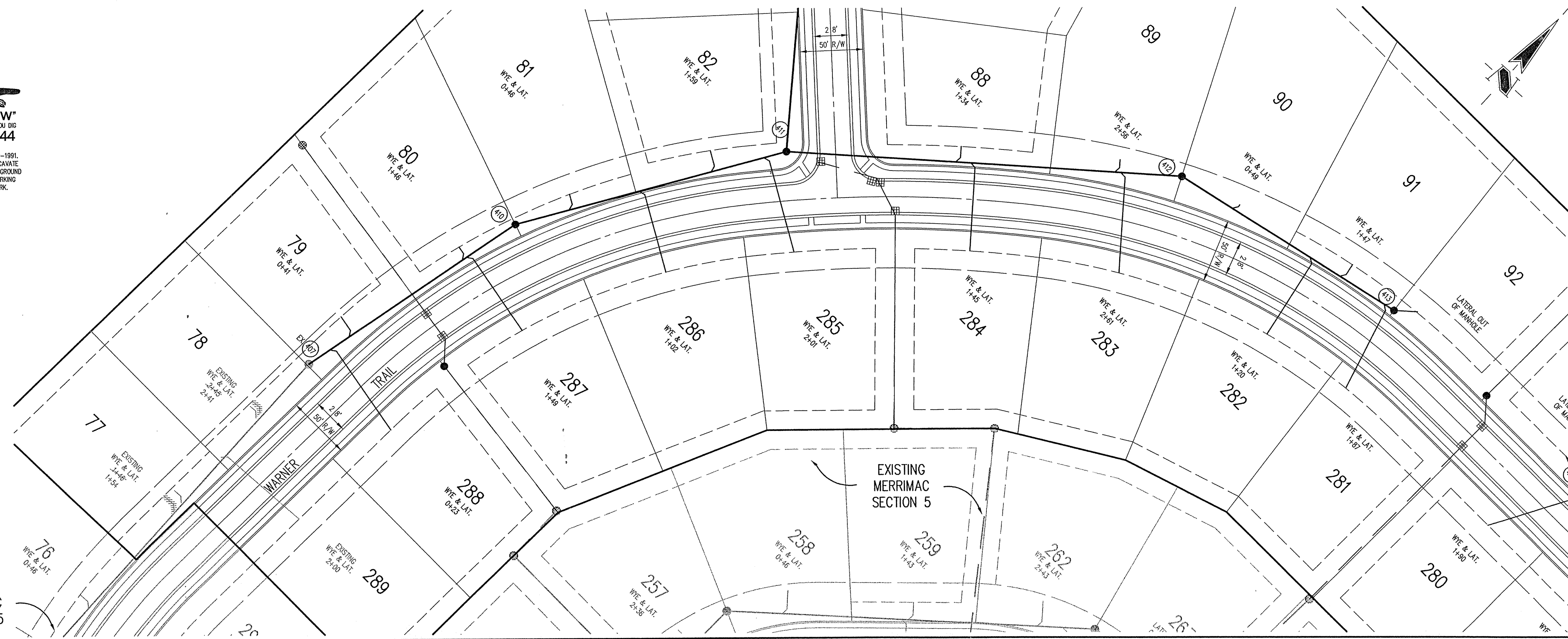
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SHEET TITLE:
TRAFFIC CONTROL PLAN
DRAWING FILES:
N:\1045\1045\DWG\C302.DWG
XREF: 0585.DWG
XREF: 02EX-B5.DWG
XREF: 05EX-B5.DWG
SHEET NO.:
C302

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- CONTRACTORS SHALL MINIMIZE DAMAGE TO EXISTING TREES.
- ALL WYE, LATERAL AND PROFILE STATIONS ARE FROM THE NEAREST DOWNSTREAM MANHOLE. (NH)
- WYES AND LATERALS TO BE 6" PIPE UNLESS OTHERWISE SPECIFIED.
- ALL WYE CONNECTIONS SHALL HAVE A MINIMUM OF FIVE (5) FOOT LATERAL EXTENSION CONNECTED TO THE WYE, OR EXTEND TO THE UTILITY AND DRAINAGE EASEMENT OF THE LOT, WHICHEVER IS GREATER, BUT IN NO CASE SHOULD THE END OF THE LATERALS BE CLOSER THAN FIVE (5) FEET TO THE BUILDING LINE, UNLESS NOTED OTHERWISE. THE END OF THE LATERAL SHALL BE PLUGGED OR CAPPED, UNLESS OTHERWISE NOTED.
- LATERALS RUNNING TO THE OPPOSITE SIDE OF THE STREET SHALL EXTEND TO THE UTILITY AND DRAINAGE EASEMENT OF THE LOT, BUT IN NO CASE SHOULD THE END OF THE LATERALS BE CLOSER THAN FIVE (5) FEET TO THE BUILDING LINE, UNLESS OTHERWISE NOTED.

BENCHMARK

U.S.G.S. 93 RHP (1951)
 BRONZE TABLE SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
 (ELEVATION = 903.373)

LEGEND/DETAILS

Sheet	Detail	Description
C802		Precast Reinforced Concrete Manhole
C802		Sanitary Sewer Bedding Detail
C802		Service Connection for Shallow Sewer
C802		Wye & Lateral Capping Detail
C802		Service Connection for Deep Sewer

NOTE
 ALL SANITARY SEWER LATERALS TO HAVE FULL DEPTH GRANULAR BACKFILL FROM RIGHT OF WAY TO RIGHT OF WAY.

REVISIONS:
 1. DCC 09/06/01, REVISED PER TAC COMMENTS.

KEITH LASH
 REGISTERED
 No. 9800085
 STATE OF INDIANA
 PROFESSIONAL ENGINEER
 DATE: 8/15/01
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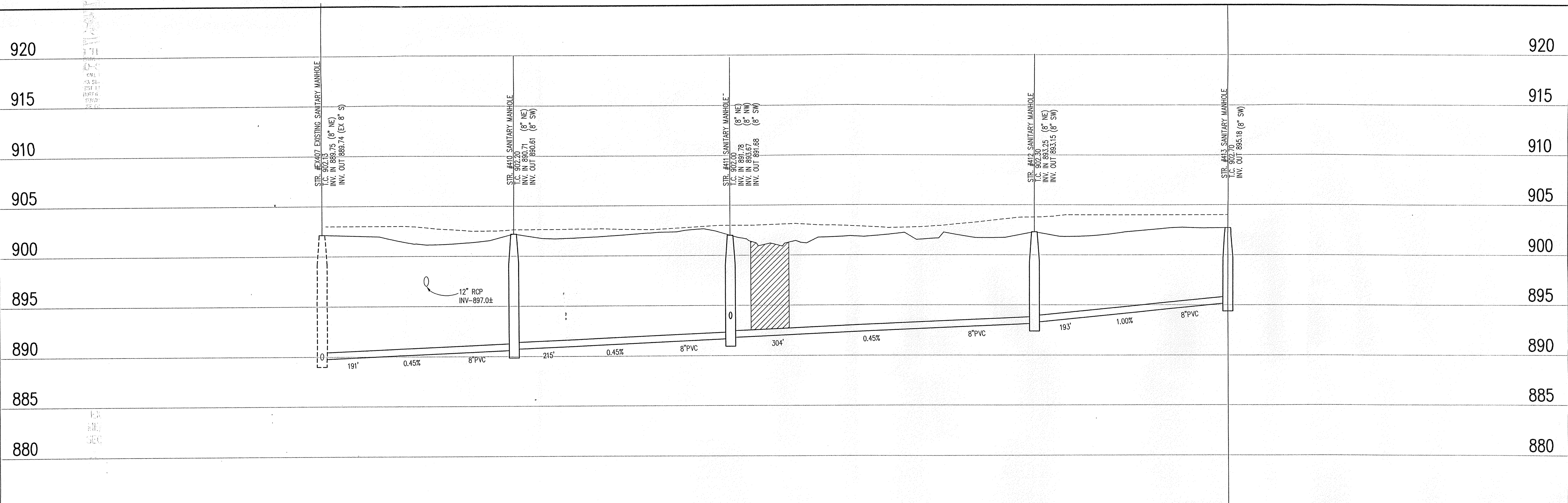
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SANITARY SEWER PLAN

SCALE: 1"=50'



SANITARY SEWER PROFILE

LEGEND

	Existing Grade
	New Grade
	Granular Backfill

SCALE: HORIZ.: 1"=50'
 VERT.: 1"=5'

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SHEET TITLE: SANITARY SEWER PLAN & PROFILE	
DRAWING FILES: N:\GMS\WORK\GMS\C401-402.DWG XREF: 0855.B3 XREF: 02EX-BS.DWG XREF: 02EX-BS.DWG XREF: SANITARY.DWG	

SHEET NO.: **C401**

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DAYS BEFORE CONSTRUCTING WORK.

GENERAL NOTES

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BENCHMARK

U.S.G.S. 93 RHP (1951)
BRONZE TABLET SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 4618 STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
(ELEVATION = 903.373)

LEGEND/DETAILS

Sheet	Detail Number	Description
CB02		Precast Reinforced Concrete Manhole
CB02		Sanitary Sewer Bedding Detail
CB02		Service Connection for Shallow Sewer
CB02		Wye & Lateral Capping Detail
CB02		Service Connection for Deep Sewer

NOTE
ALL SANITARY SEWER LATERALS TO HAVE FULL DEPTH GRANULAR BACKFILL FROM RIGHT OF WAY TO RIGHT OF WAY.

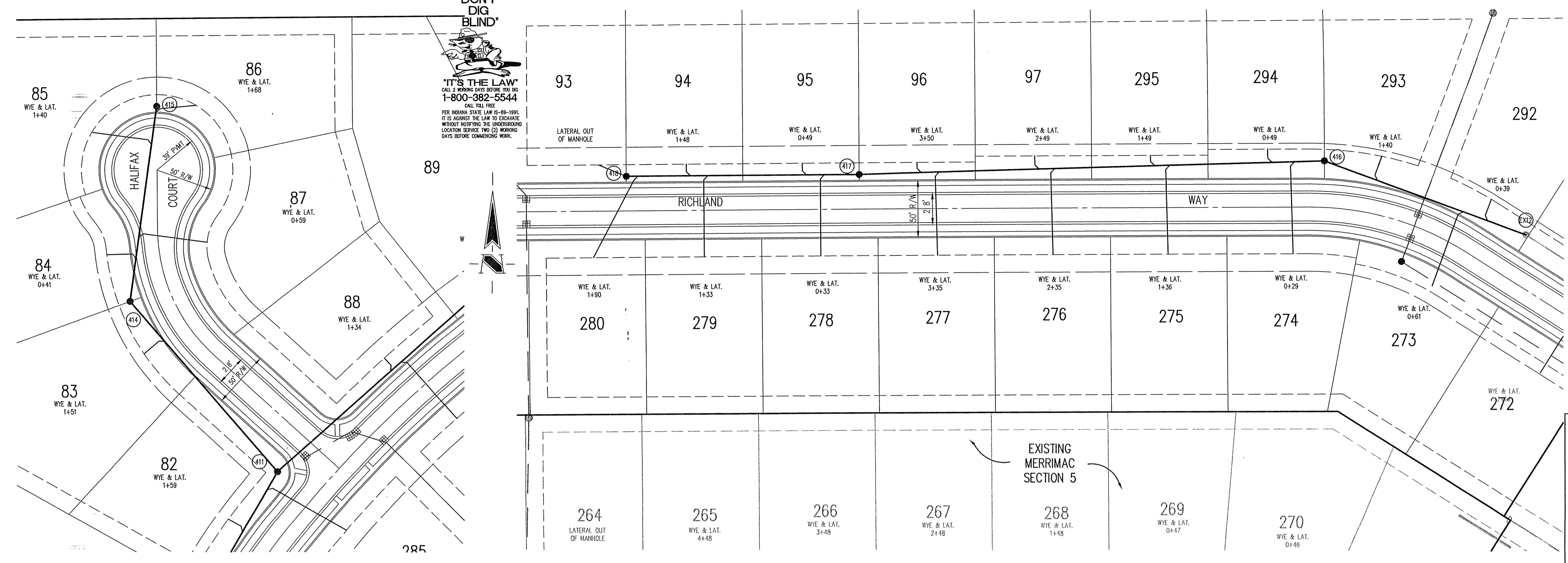
REVISIONS: 1. DCC 08/15/01, REVISED PER TAG COMMENTS.

KEITH LASH
REGISTERED
No. 9800085
STATE OF INDIANA
PROFESSIONAL ENGINEER
DATE: 8/15/01
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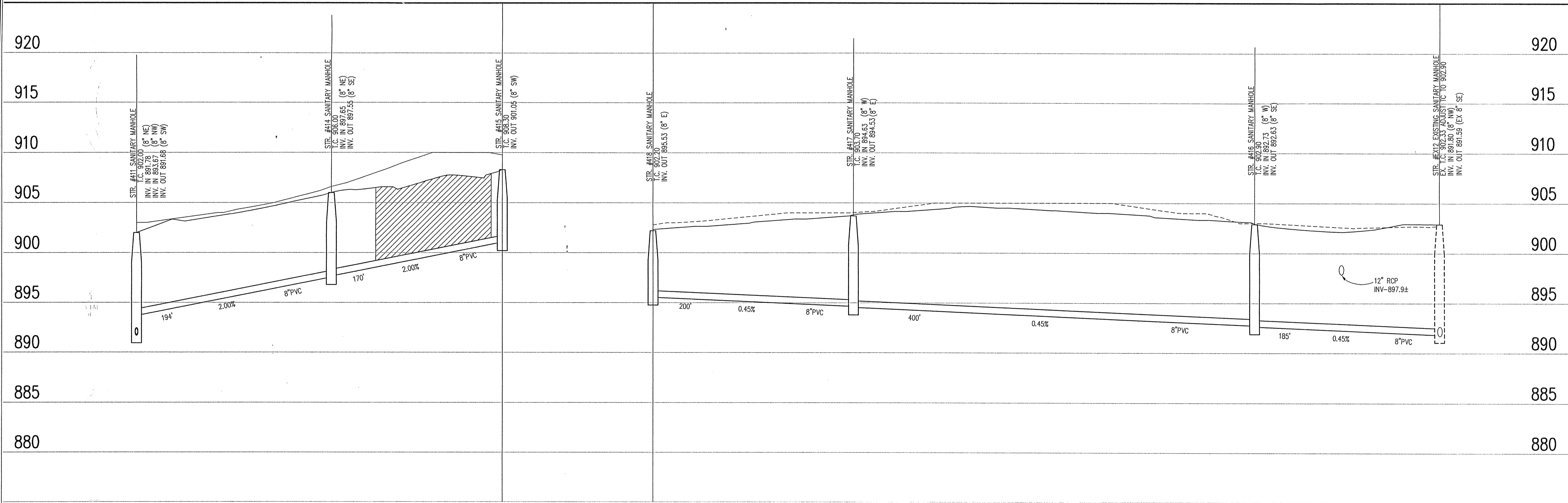
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SANITARY SEWER PLAN

SCALE: 1"=50'



SANITARY SEWER PROFILE

LEGEND

	Existing Grade
	New Grade
	Granular Backfill

SCALE: HORZ.: 1"=50'
VERT.: 1"=5'

FILED
SEP 12 2001
OFFICE OF HAMILTON COUNTY SUPERIOR

DATE: 8/15/01 PROJECT NO.: 1045.004
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SHEET TITLE: SANITARY SEWER PLAN & PROFILE
DRAWING FILES:
M:\V045\004\DWG\C401-402.DWG
XREF: 08BS.DWG
XREF: 02EX-BS.DWG
XREF: 02EX-BS.DWG
XREF: SANITARY.DWG

SHEET NO.:
C402

GENERAL NOTES

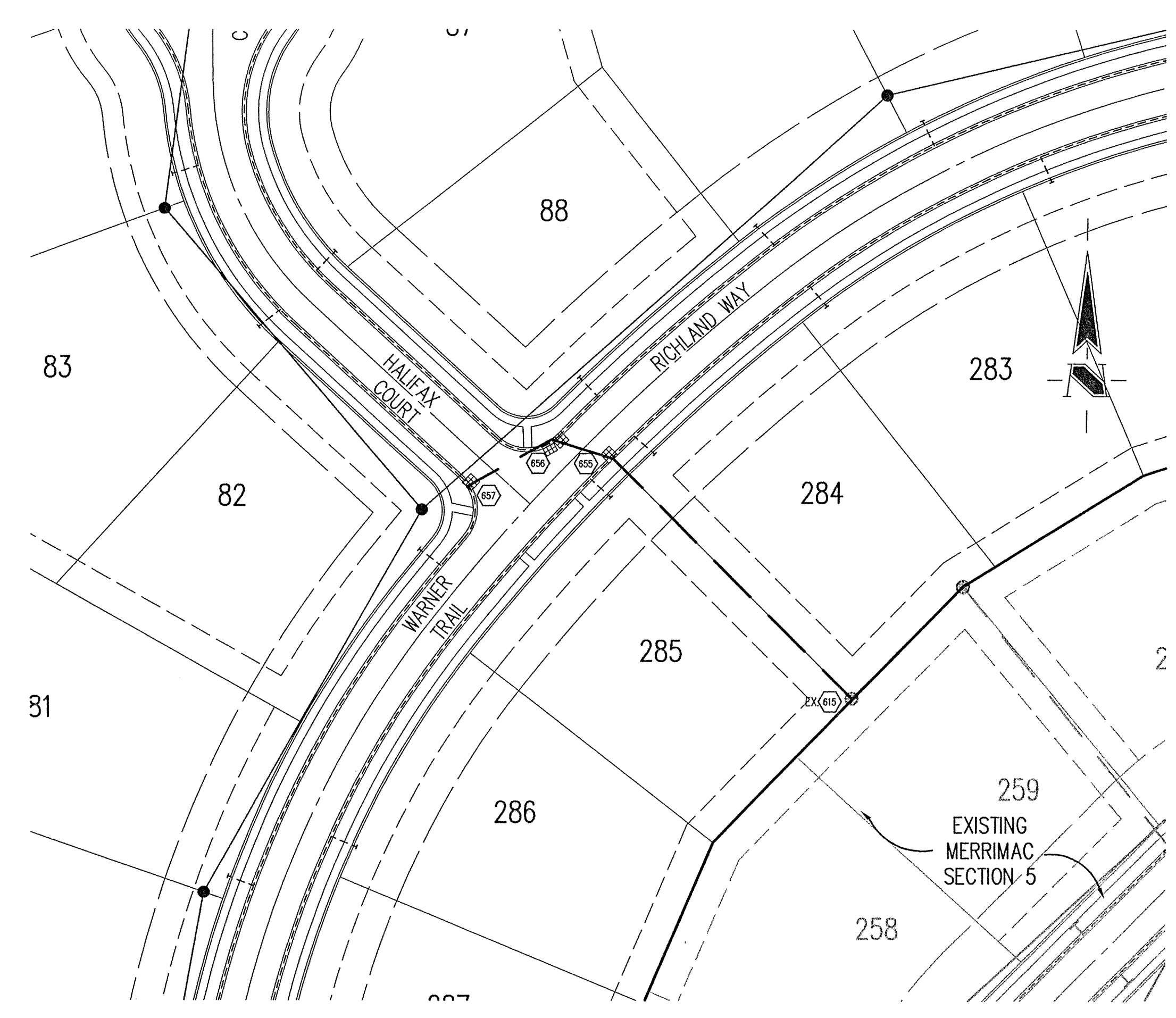
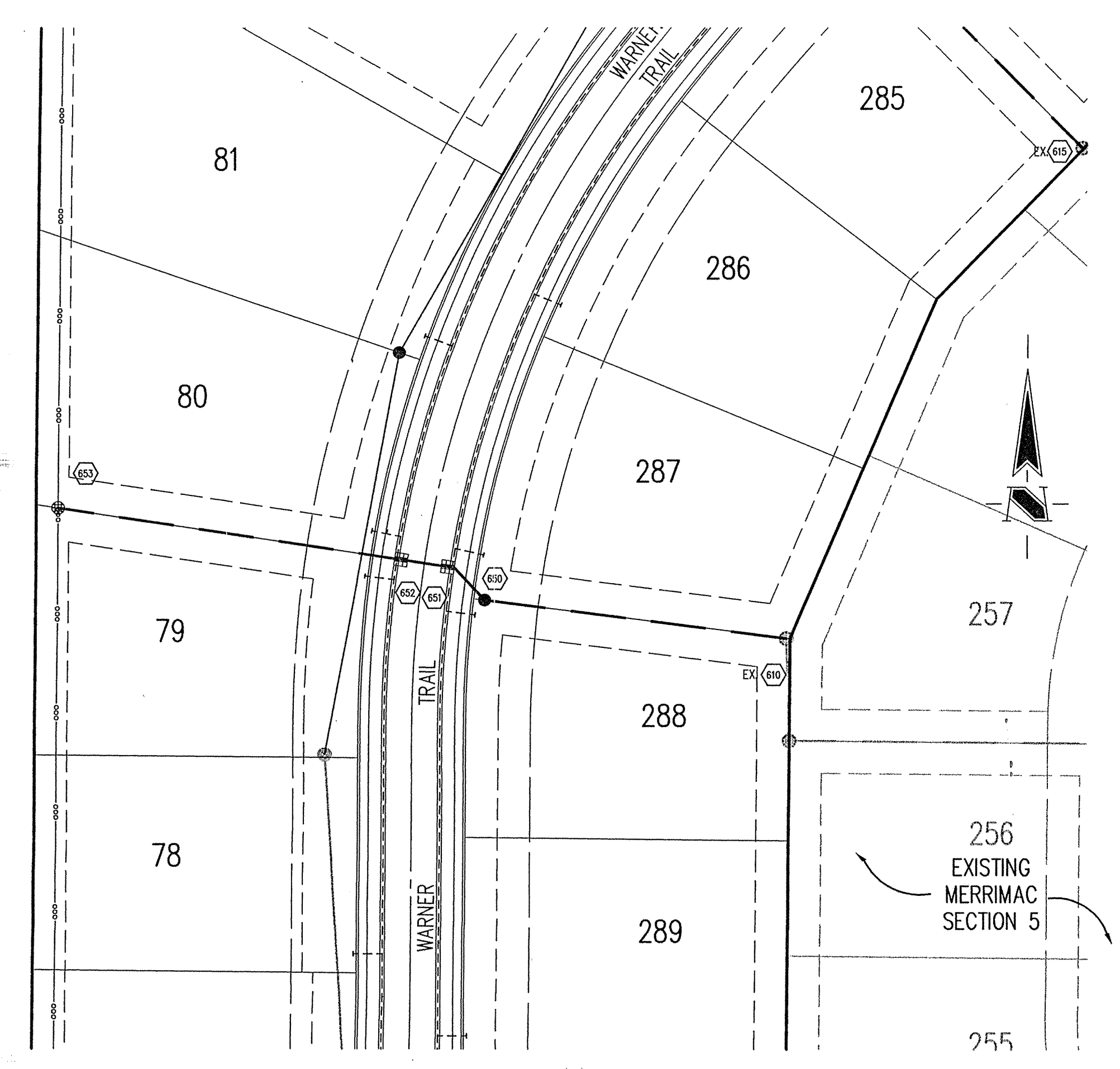
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Sheet	Detail	Description
C803	1	Bedding Detail - Reinforced Concrete Pipe (RCP)
C803	2	Roll Curb Inlet Detail
C803	3	Beehive Inlet Detail
C803	4	Storm Manhole Detail
C803	5	Precast Concrete End Section
C107		RipRip Detail @ End Section

BENCHMARK

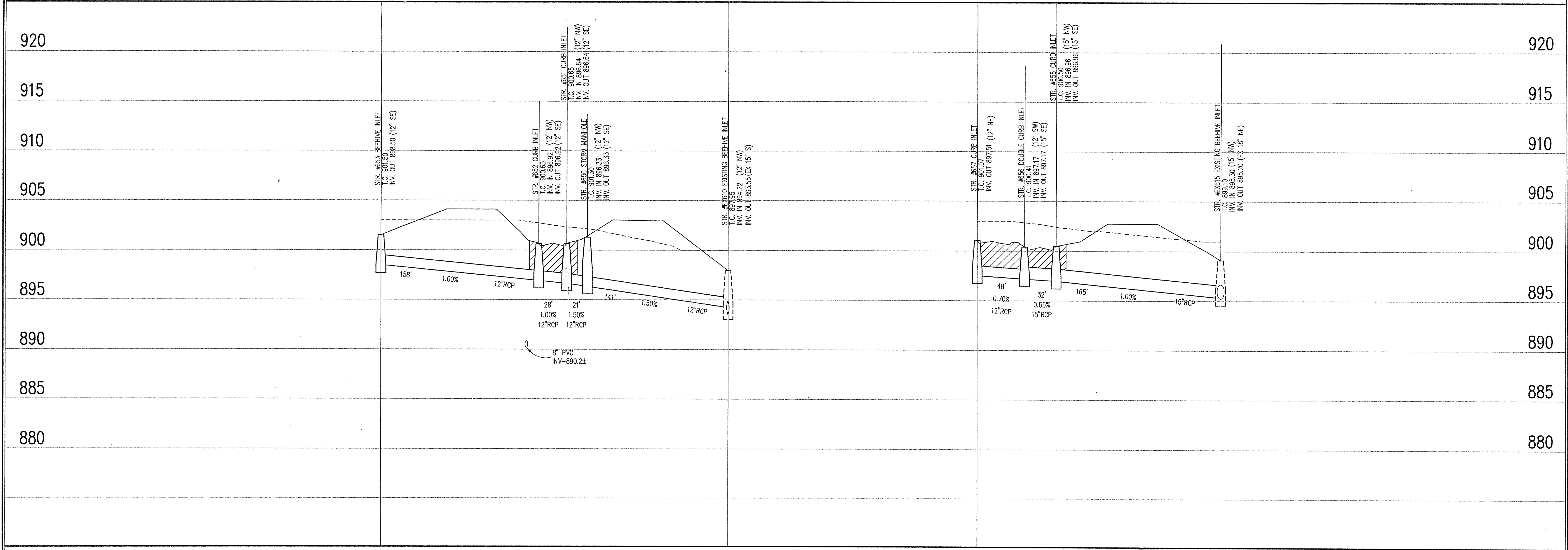
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STORM SEWER PLAN

SCALE: 1"=50'



STORM SEWER PROFILE

LEGEND		

SCALE: HORZ.: 1"=50'
VERT.: 1"=5'

REVISIONS:
1. DEC 09/06/01 REVISED PER TAC COMMENTS.

KEITH LASH
REGISTERED
No. 9800885
STATE OF INDIANA
PROFESSIONAL ENGINEER
DATE: 8/15/01
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OFFICE OF HAMILTON COUNTY SURVEYOR

DATE: 8/15/01	PROJECT NO.: 1045.004
DRAWN BY: MC	CHECKED BY:
SHEET TITLE: STORM SEWER PLAN & PROFILE	
DRAWING FILES: N:\1045\004\DWG\SC601-602.DWG XREF: 685.DWG XREF: 02EX-BS.DWG XREF: 02EX-BS.DWG XREF: STORM.DWG	

SHEET NO.: **C601**

GENERAL NOTES

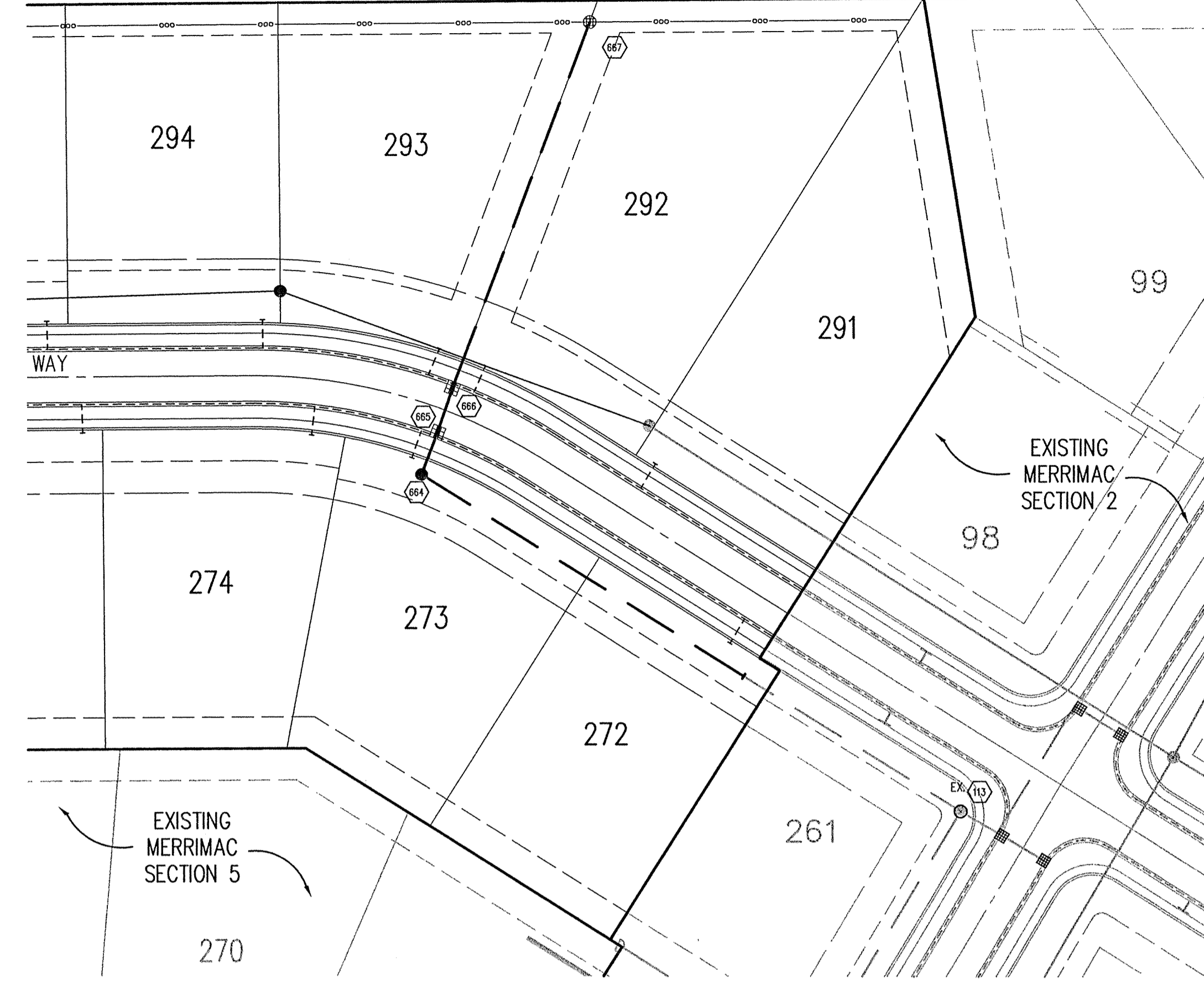
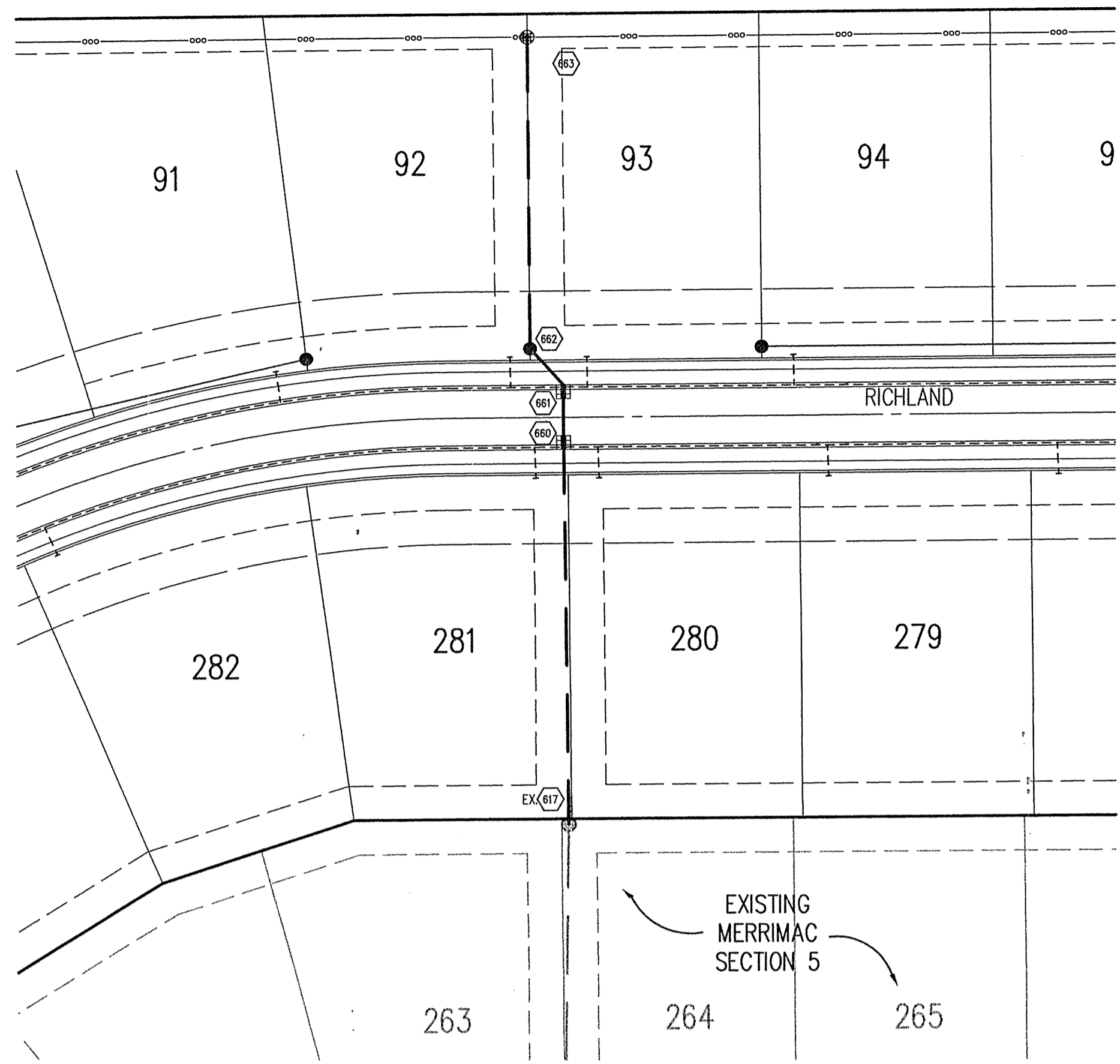
1. TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL AND STATE STANDARDS.
2. ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.H.A. STANDARDS FOR WORKER SAFETY.
3. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ALL UTILITY LOCATIONS BEFORE CONSTRUCTION BEGINS.
4. CONTRACTORS SHALL MINIMIZE DAMAGE TO EXISTING TREES.

Sheet	Detail Number	Description
CB03	1	Bedding Detail - Reinforced Concrete Pipe (RCP)
CB03	2	Roll Curb Inlet Detail
CB03	3	Beehive Inlet Detail
CB03	4	Storm Manhole Detail
CB03	5	Precast Concrete End Section
C107		RipRap Detail @ End Section

BENCHMARK

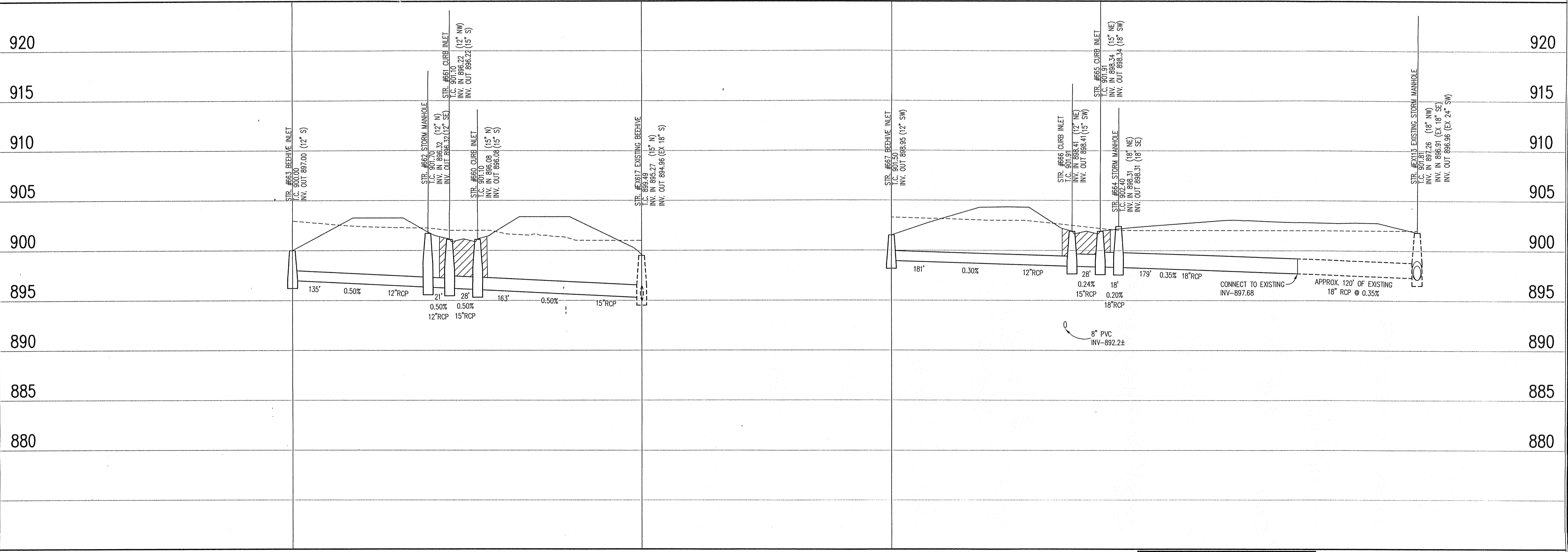
U.S.G.S. 93 RHP (1951)
BRONZE TABLE SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
(ELEVATION = 903.373)

HOLEY MOLEY SAYS
"DON'T DIG BLIND"
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
CALL TOLL FREE
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.



STORM SEWER PLAN

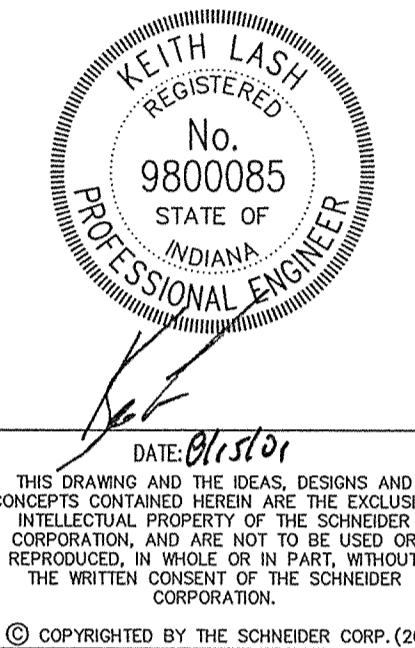
SCALE: 1"=50'



STORM SEWER PROFILE

LEGEND		
	Existing Grade	
	New Grade	
	Granular Backfill	

SCALE: HORZ.: 1"=50'
VERT.: 1"=5'



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CARMEL, INDIANA

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SHEET TITLE:
STORM SEWER PLAN & PROFILE
DRAWING FILES:
N:\1045\004\DWG\SC001-602.DWG
XREF: 602.DWG
XREF: 02EX-BS.DWG
XREF: 02EX-BS.DWG
XREF: STORM.DWG

SHEET NO.: **C602**

BENCHMARK

U.S.G.S. 93 RHP (1951)
BRONZE TABLET SET IN CONCRETE POST, LOCATED ON THE SOUTH SIDE OF 146th STREET, APPROX. 25' WEST OF THE CENTERLINE OF DITCH ROAD.
(ELEVATION = 903.373)

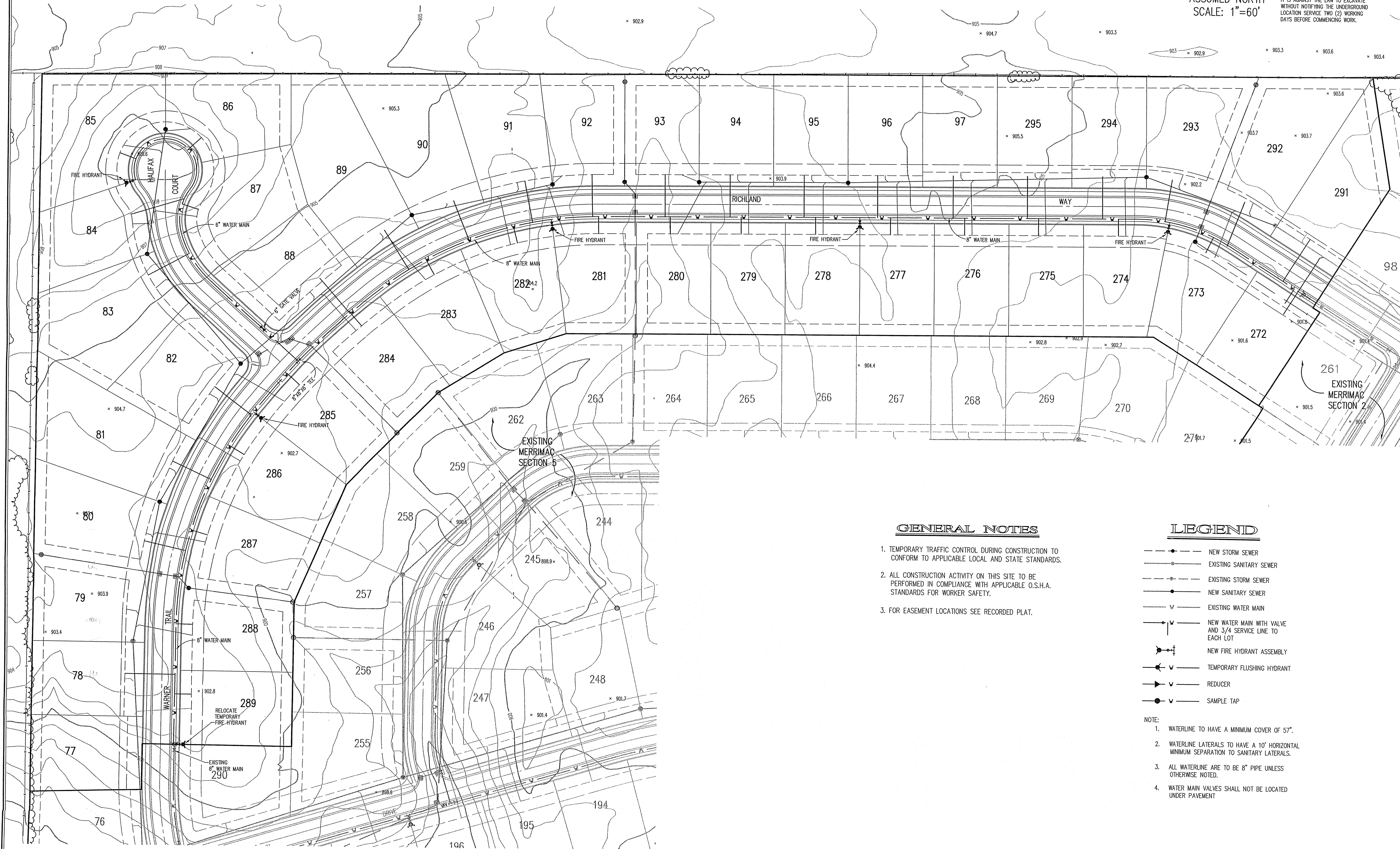
ASSUMED NORTH
SCALE: 1"=60'

HOLEY MOLEY SAYS
"DON'T DIG BLIND"



"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
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GENERAL NOTES

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2. ALL CONSTRUCTION ACTIVITY ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE O.S.H.A. STANDARDS FOR WORKER SAFETY.
3. FOR EASEMENT LOCATIONS SEE RECORDED PLAT.

LEGEND

- NEW STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- NEW SANITARY SEWER
- EXISTING WATER MAIN
- NEW WATER MAIN WITH VALVE AND 3/4" SERVICE LINE TO EACH LOT
- NEW FIRE HYDRANT ASSEMBLY
- TEMPORARY FLUSHING HYDRANT
- REDUCER
- SAMPLE TAP

- NOTE:
1. WATERLINE TO HAVE A MINIMUM COVER OF 57".
 2. WATERLINE LATERALS TO HAVE A 10' HORIZONTAL MINIMUM SEPARATION TO SANITARY LATERALS.
 3. ALL WATERLINE ARE TO BE 8" PIPE UNLESS OTHERWISE NOTED.
 4. WATER MAIN VALVES SHALL NOT BE LOCATED UNDER PAVEMENT

REVISIONS:
1. DCC 08/05/01, REISED PER FAC COMMENTS.

DATE: 8/15/01

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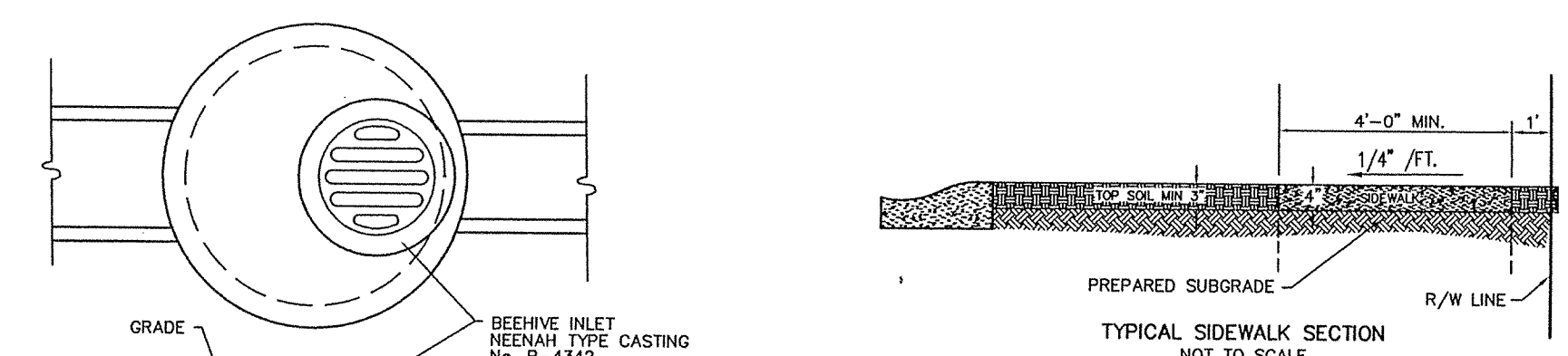
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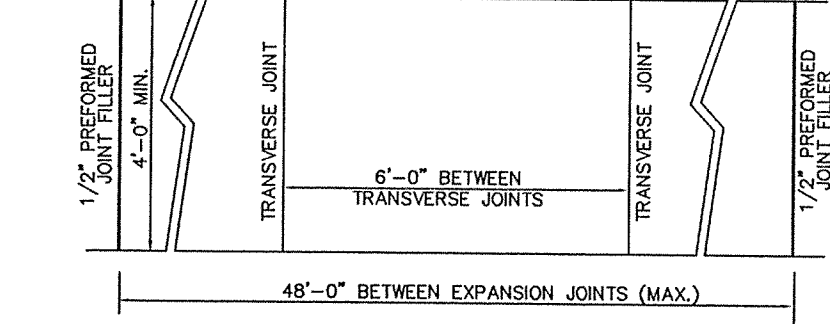
FILED
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DATE: 8/15/01	PROJECT NO.: 1045.004
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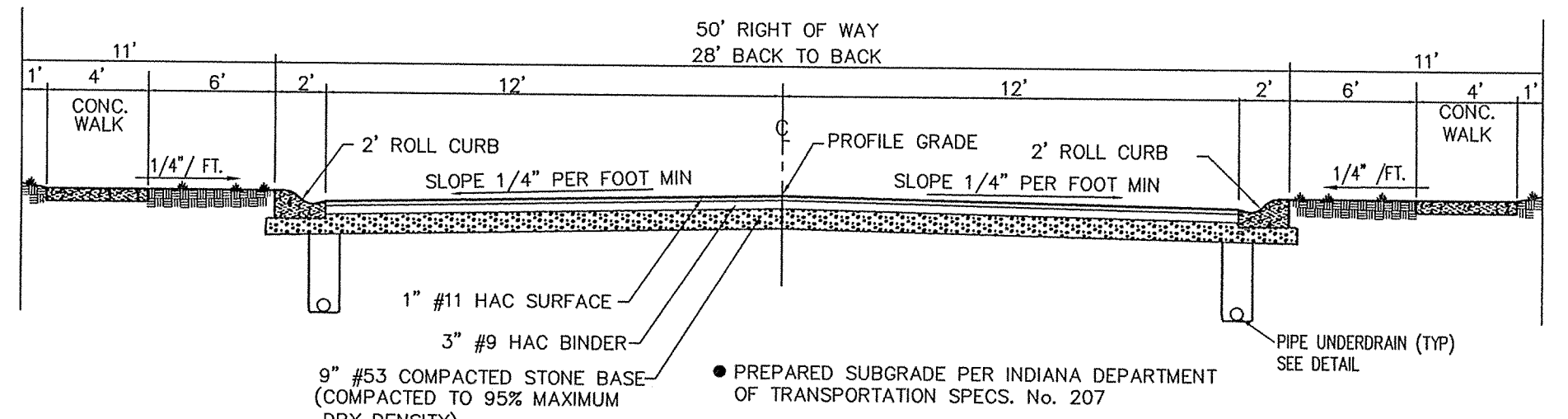
SHEET NO.:
C701



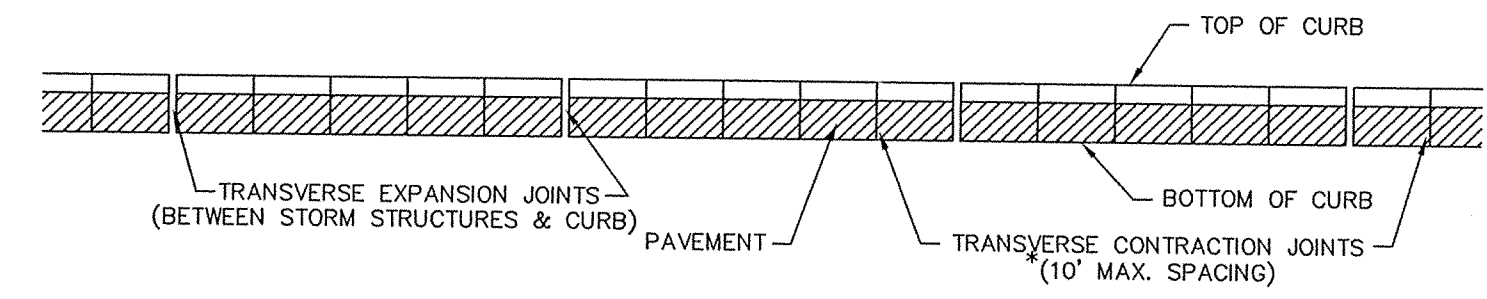
THE SPACE BEHIND THE CURB SHALL BE FILLED WITH SUITABLE MATERIAL TO THE REQUIRED ELEVATION AND COMPACTED IN LAYERS NOT TO EXCEED 6" IN DEPTH. SUBGRADE UNDER ALL CURB, SIDEWALK, AND DRIVES SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 207.02 OF THE STANDARD SPECIFICATIONS.



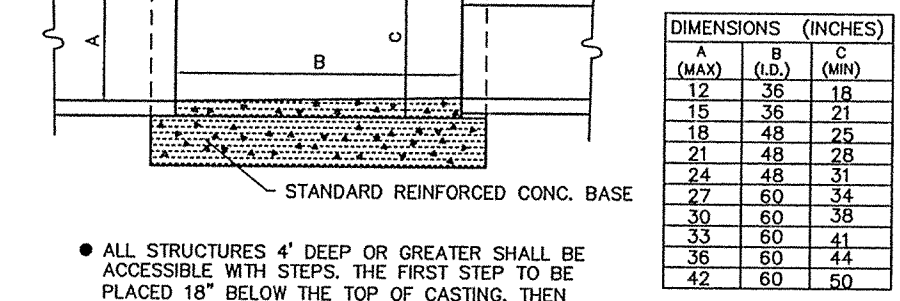
SIDEWALK DETAIL 9 C801



TYPICAL STREET SECTION 1 C801



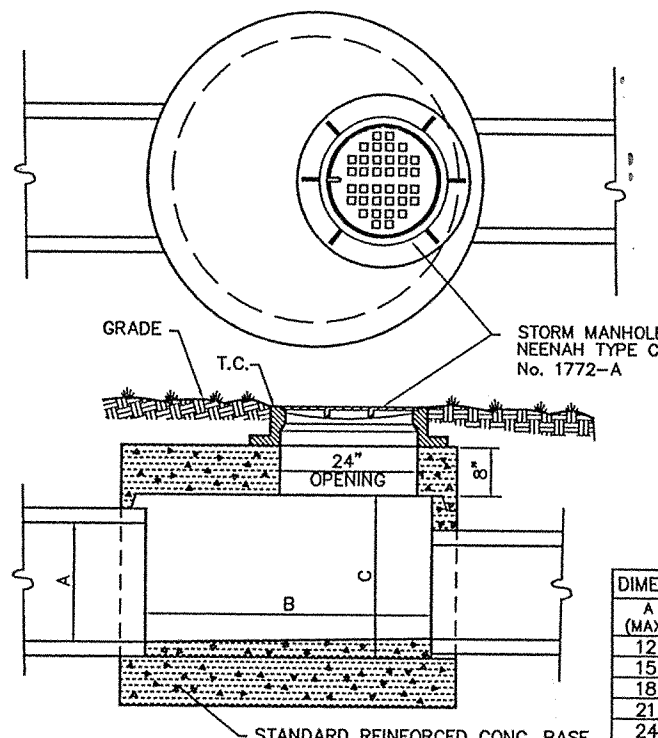
CURB JOINT DETAIL 2 C801



ALL STRUCTURES 4" DEEP OR GREATER SHALL BE ACCESSIBLE WITH STEPS. THE FIRST STEP TO BE PLACED 18" BELOW THE TOP OF CASTING, THEN EVERY 16" THEREAFTER.

DIMENSIONS (INCHES)		
A	B	C
12	36	18
15	36	21
18	48	25
21	48	28
24	48	31
27	60	34
30	60	38
33	60	41
36	60	44
42	60	50

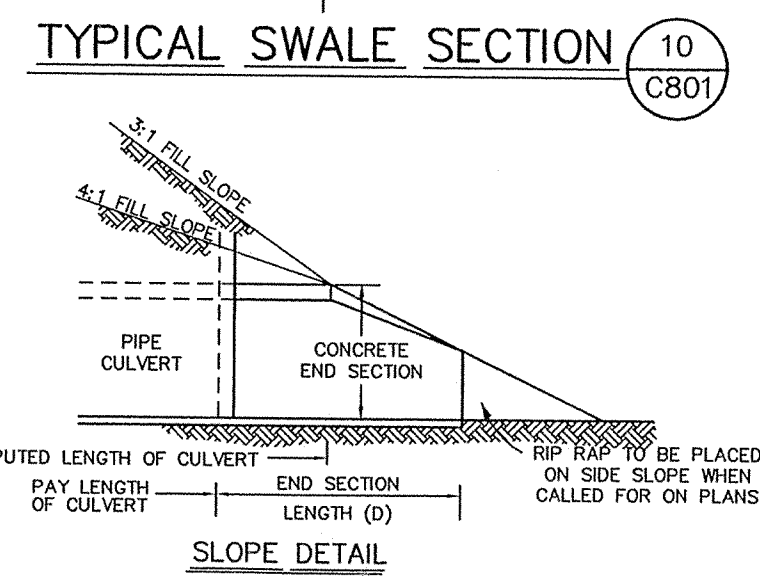
BEEHIVE INLET DETAIL 13 C801



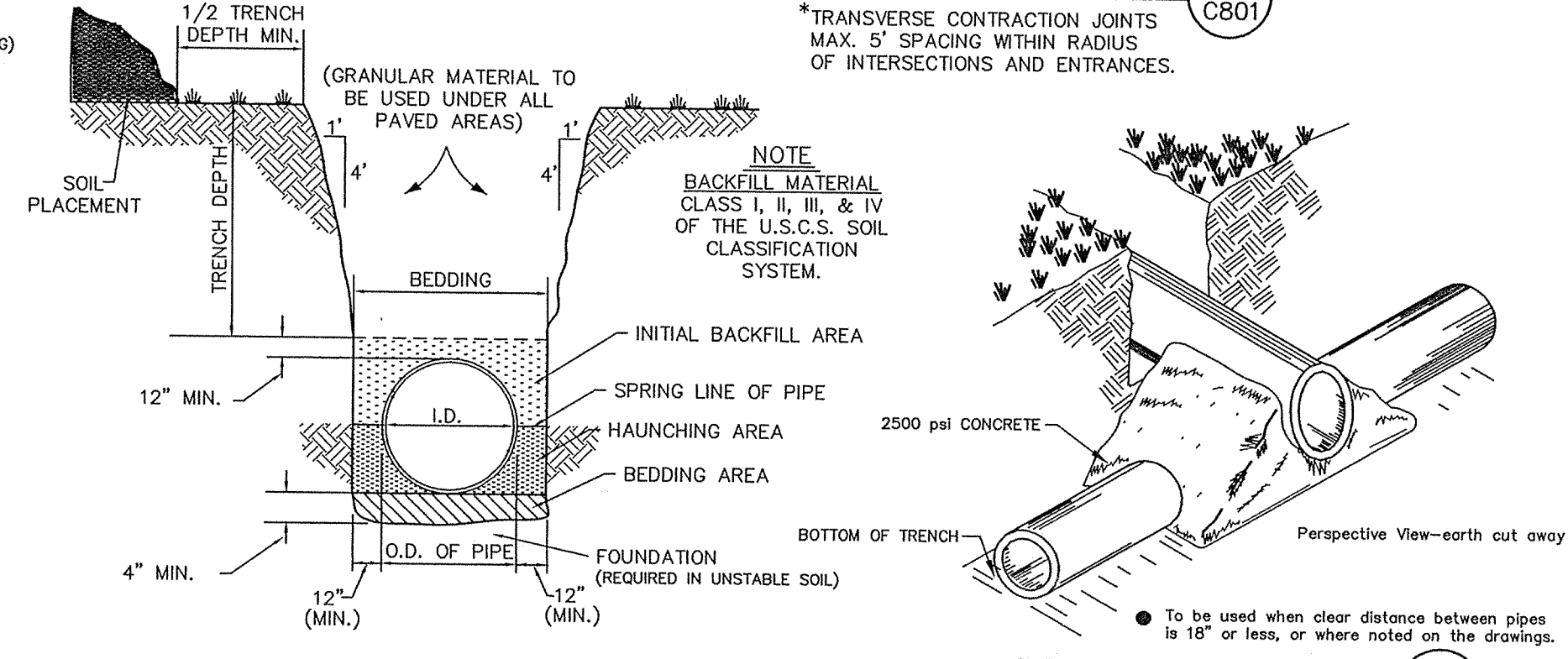
ALL STRUCTURES 4" DEEP OR GREATER SHALL BE ACCESSIBLE WITH STEPS. THE FIRST STEP TO BE PLACED 18" BELOW THE TOP OF CASTING, THEN EVERY 16" THEREAFTER.

DIMENSIONS (INCHES)		
A	B	C
12	36	18
15	36	21
18	48	25
21	48	28
24	48	31
27	60	34
30	60	38
33	60	41
36	60	44
42	60	50

STORM MANHOLE DETAIL 14 C801

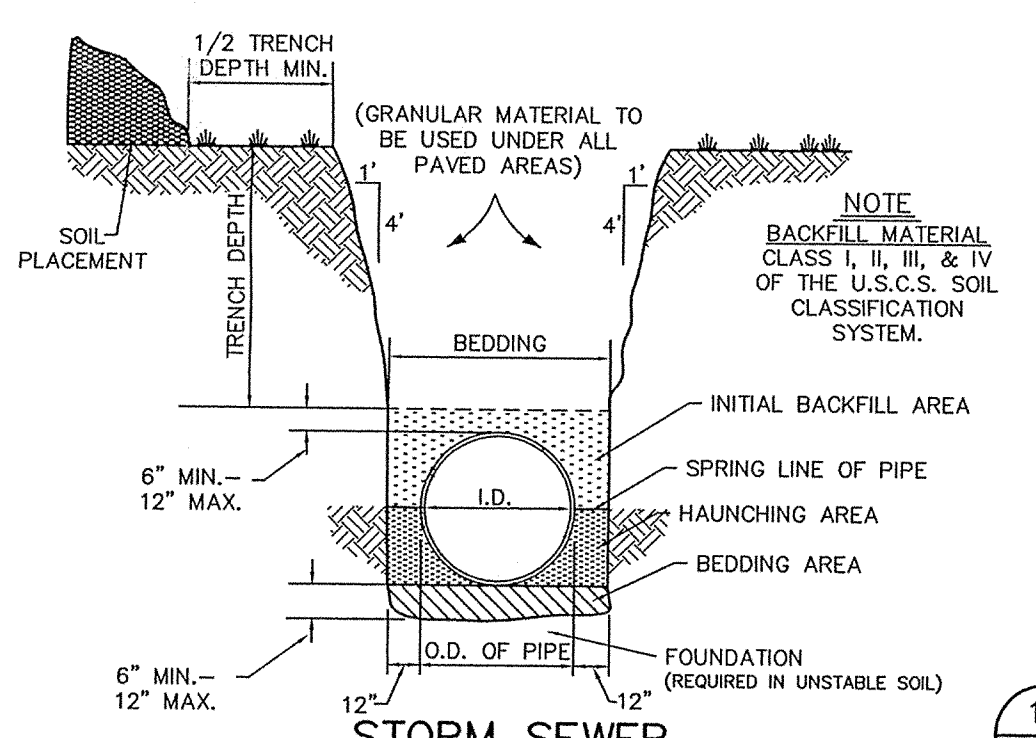


TYPICAL SWALE SECTION 10 C801

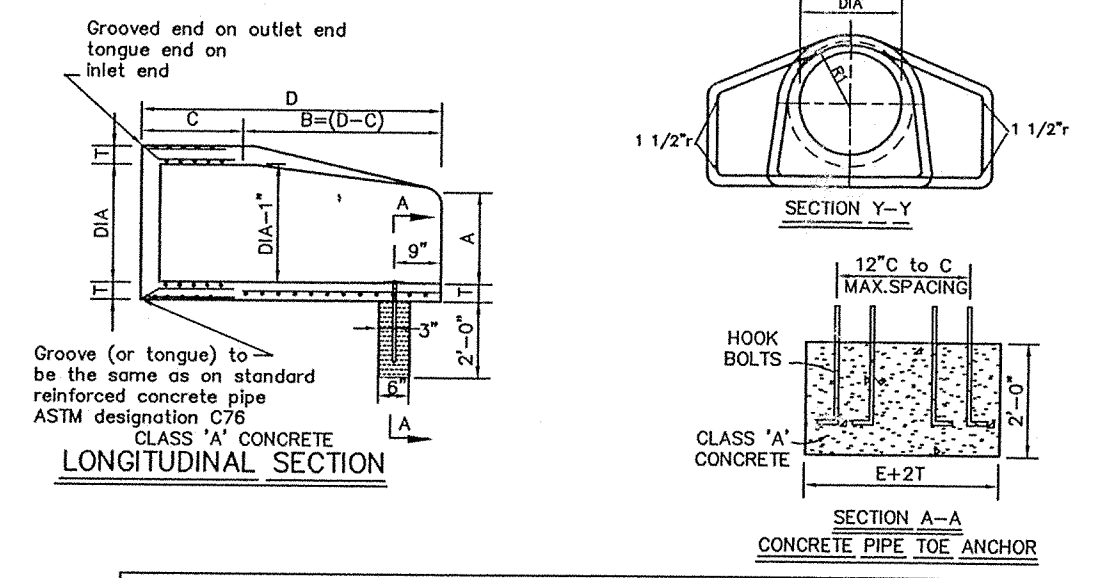


SANITARY SEWER BEDDING DETAIL 6 C801

CONCRETE CRADLE 3 C801

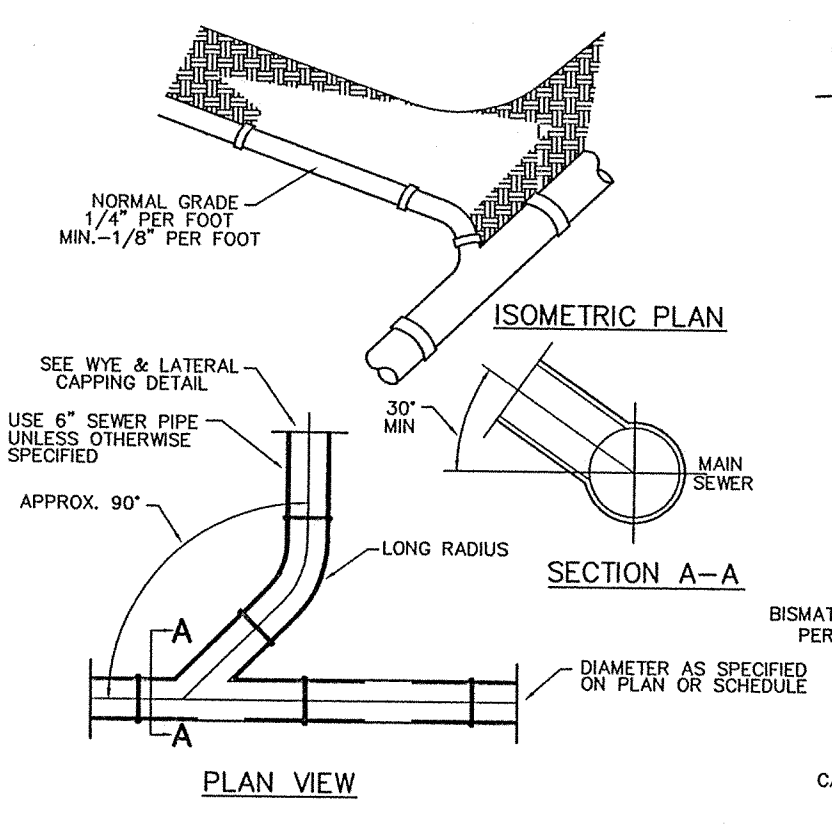


STORM SEWER TRENCH & PIPE EMBEDMENT DETAIL 15 C801

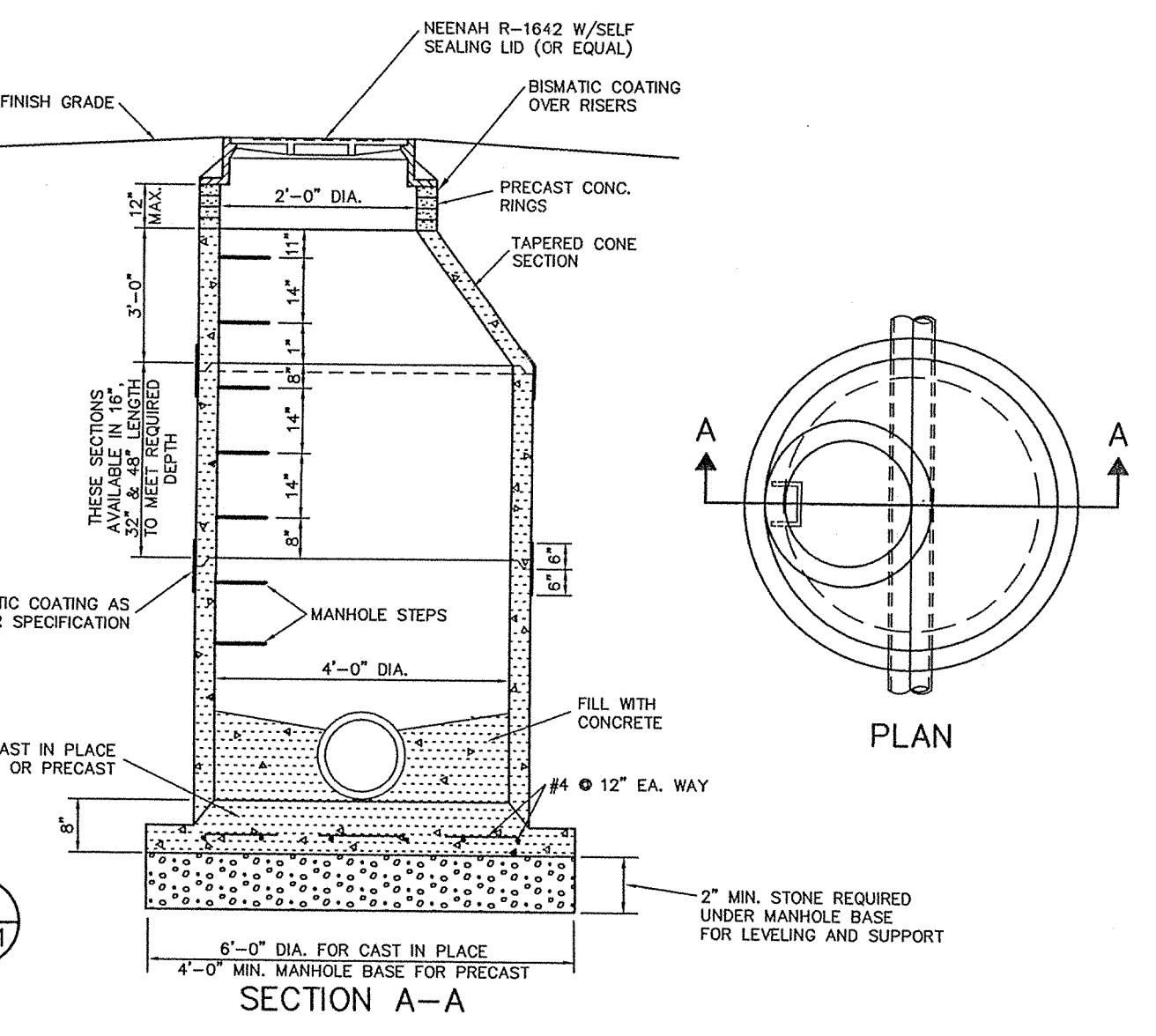


DIMENSIONS OF CONCRETE END SECTIONS FOR ROUND PIPE									
DIA (MIN)	A*	C*	D*	E*	K	R ₁	R ₂	APPROX. WEIGHT	B
12"	2"	4'-3"	6'-2"	2'-0"	1.3	10 1/8"	9"	800	8
15"	2 1/4"	7"	4'-0"	6'-3"	2'-0"	1.5	12 1/2"	11"	1,100
18"	2 1/2"	11"	4'-1"	6'-2"	3'-0"	1.8	15 1/2"	12"	1,300
21"	2 3/4"	11"	3'-6"	6'-3"	3'-6"	2.1	16 1/8"	13"	1,500
24"	3"	1'-0"	2'-8"	6'-3"	4'-0"	2.3	16 3/16"	14"	1,800
27"	3 1/4"	1'-1"	2'-5"	6'-3"	4'-6"	2.6	18 1/2"	14 1/2"	2,100
30"	3 1/2"	1'-2"	1'-10"	6'-3"	5'-0"	2.9	18 3/16"	15"	2,400
33"	3 3/4"	1'-2"	3'-8"	6'-3"	5'-6"	3.1	18 1/2"	17 1/2"	4,100
36"	4"	1'-5"	3'-1"	6'-3"	6'-0"	3.4	23 3/4"	20"	4,200

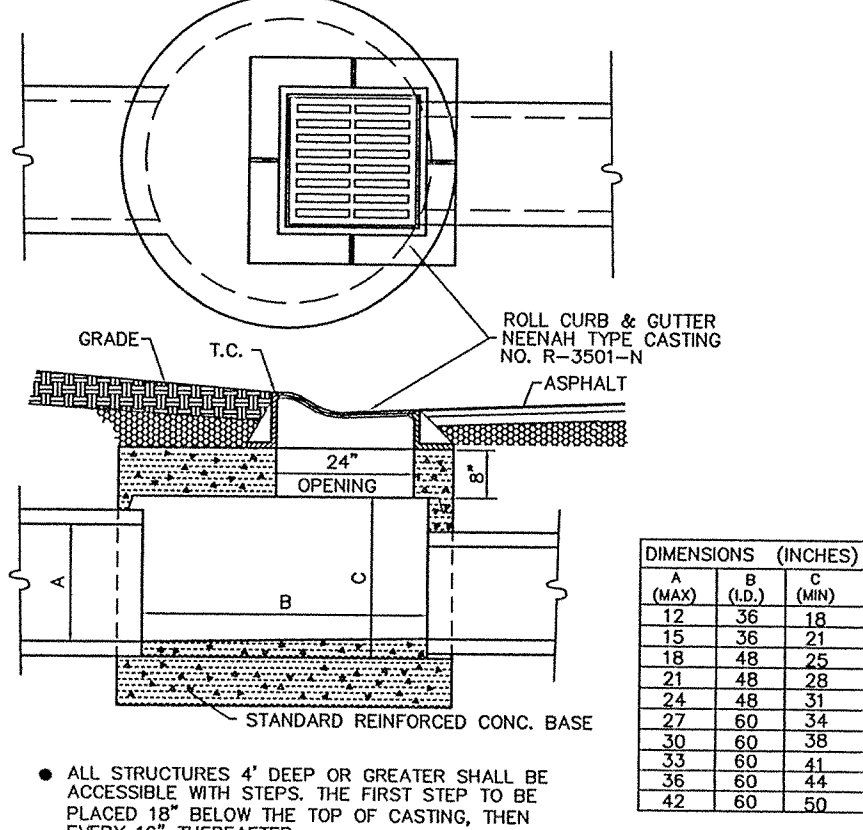
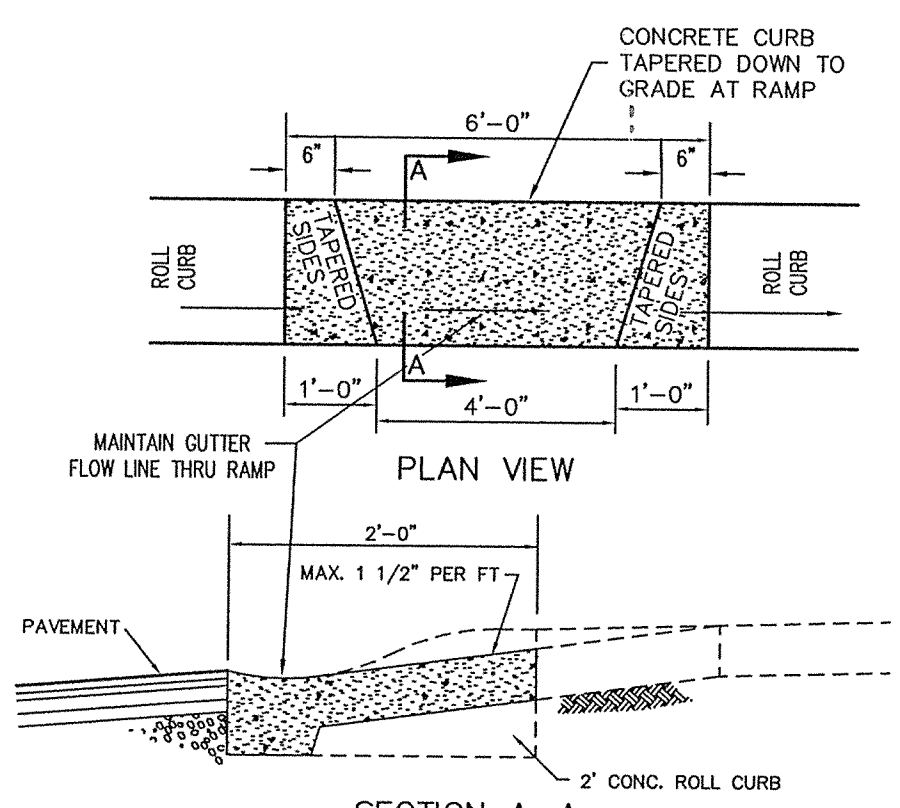
PRECAST CONCRETE END SECTION 11 C801



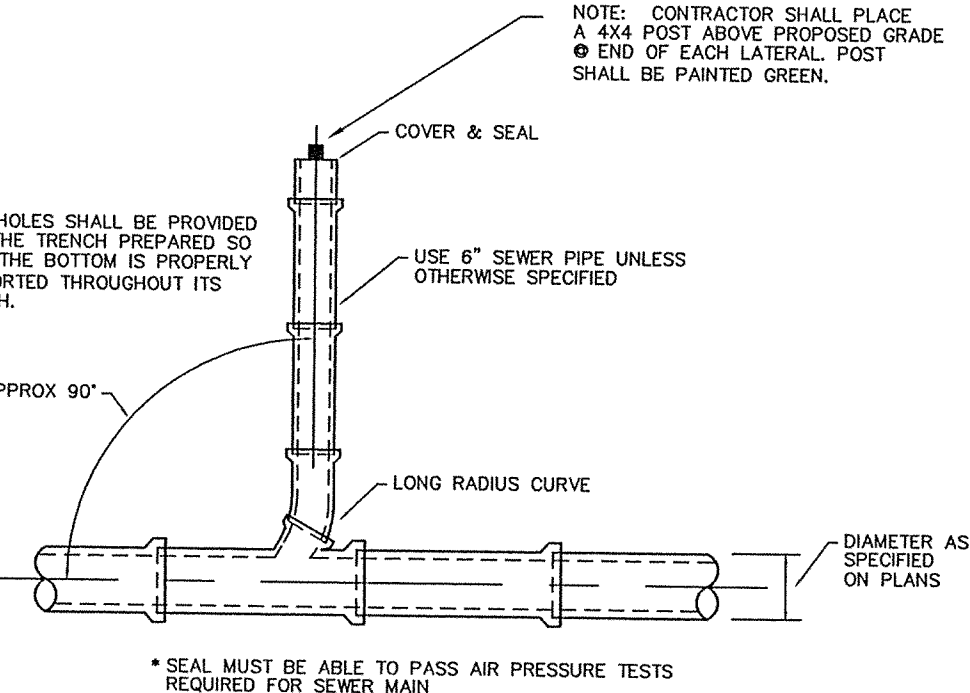
CONNECTION TO MAIN SEWER 7 C801



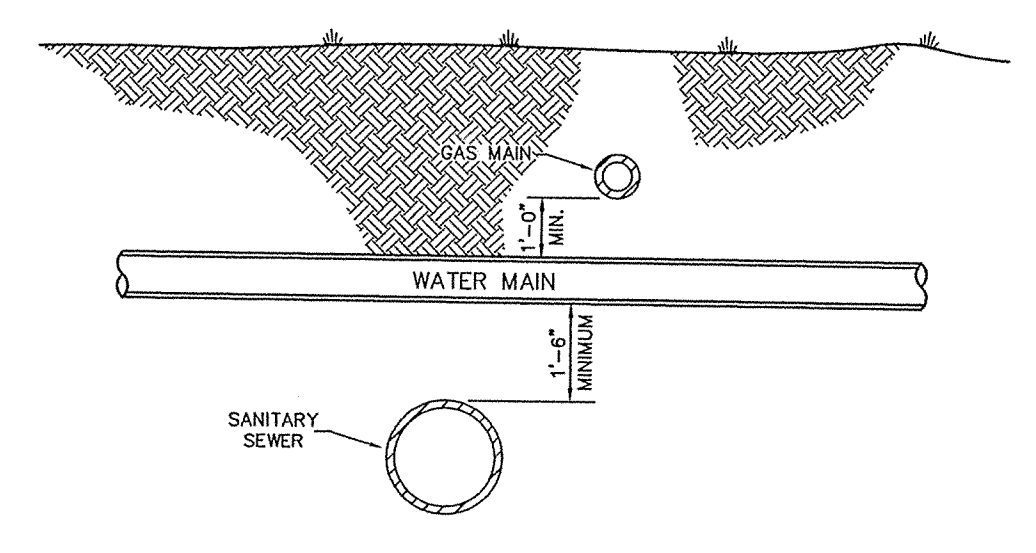
SANITARY MANHOLE DETAIL 4 C801



ROLL CURB INLET 12 C801



WYE & LATERAL CAPPING DETAIL 8 C801



TYPICAL UTILITY CROSSING 5 C801

KEITH LASH
REGISTERED
No. 9800085
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 8/15/01

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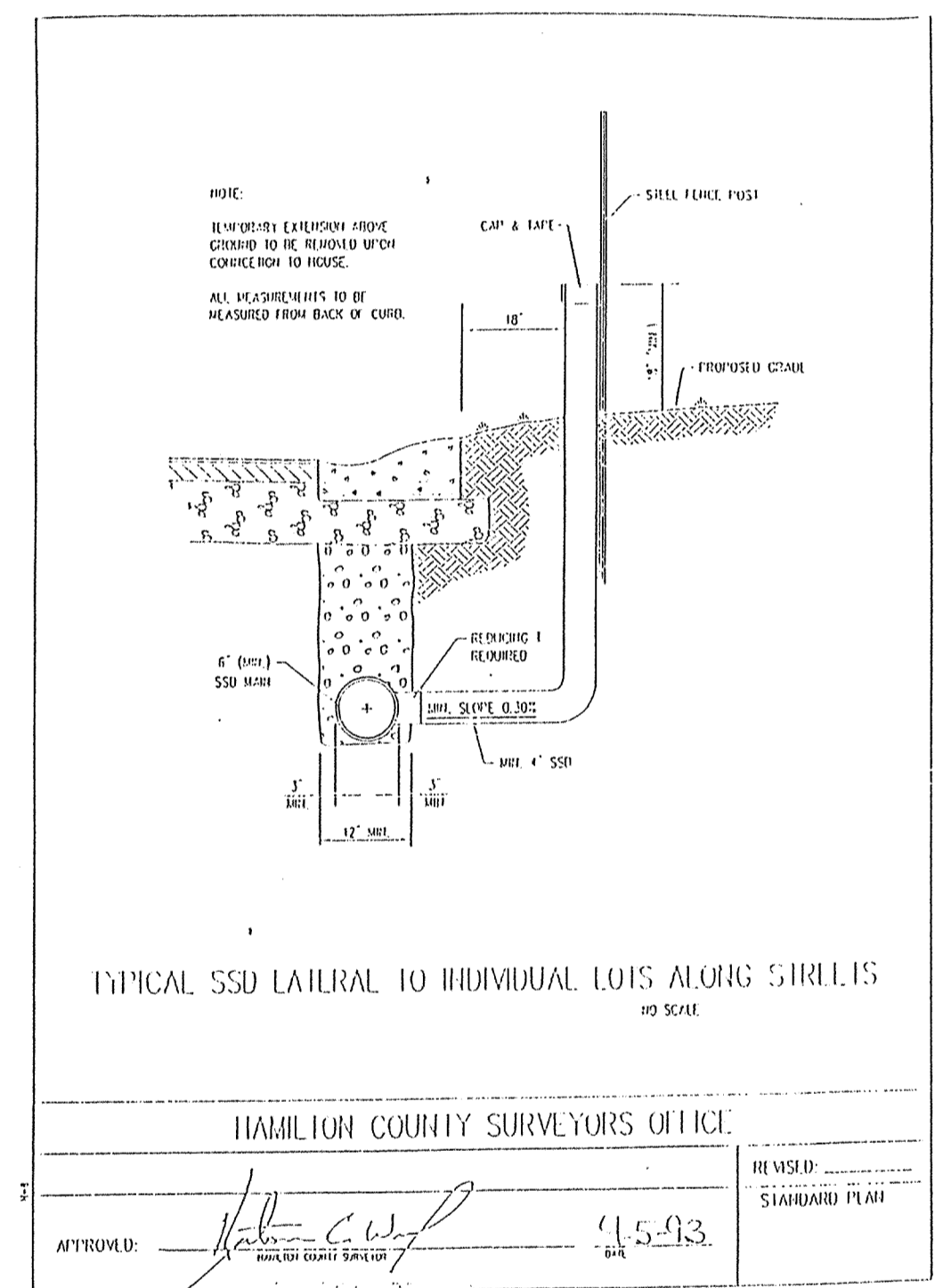
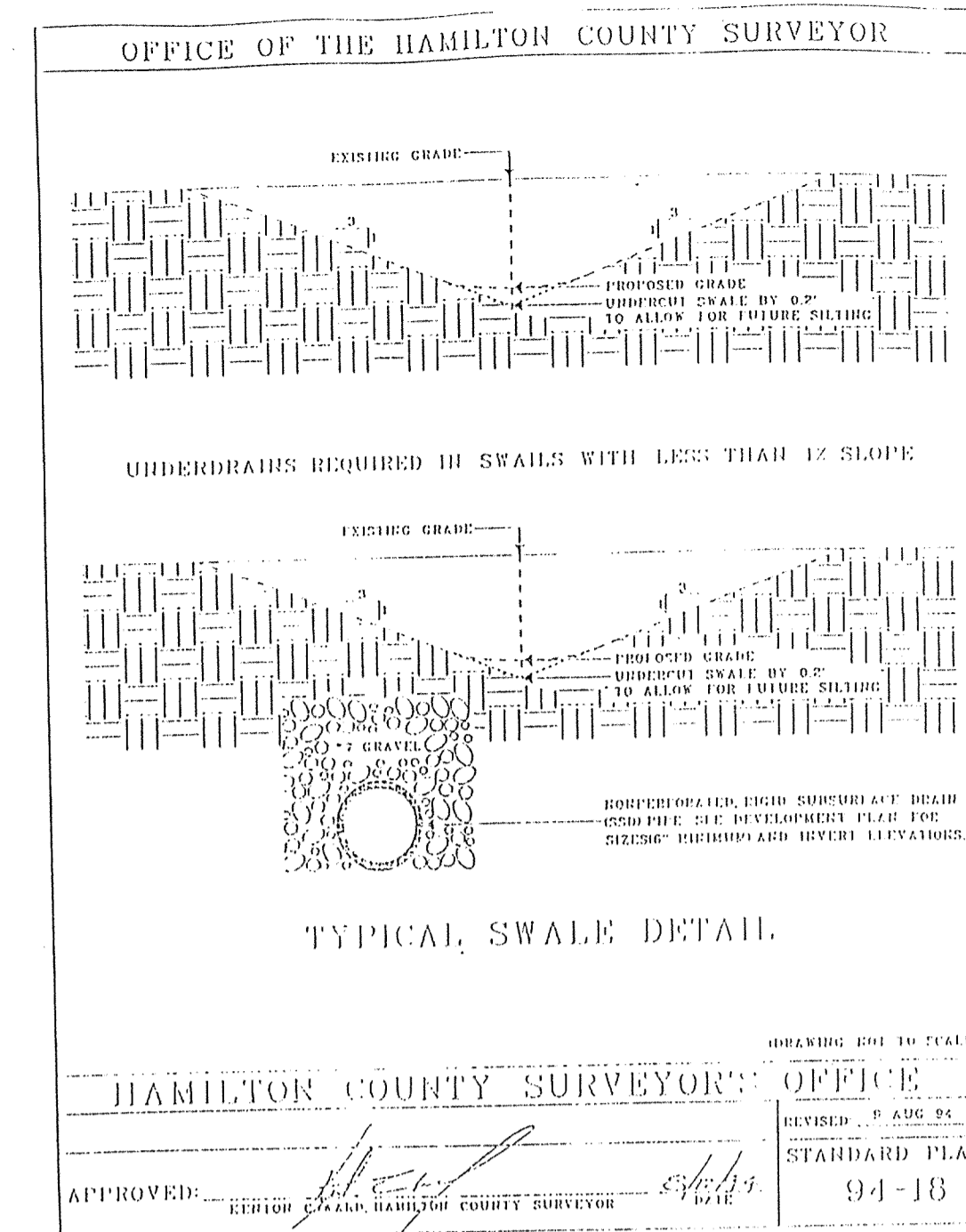
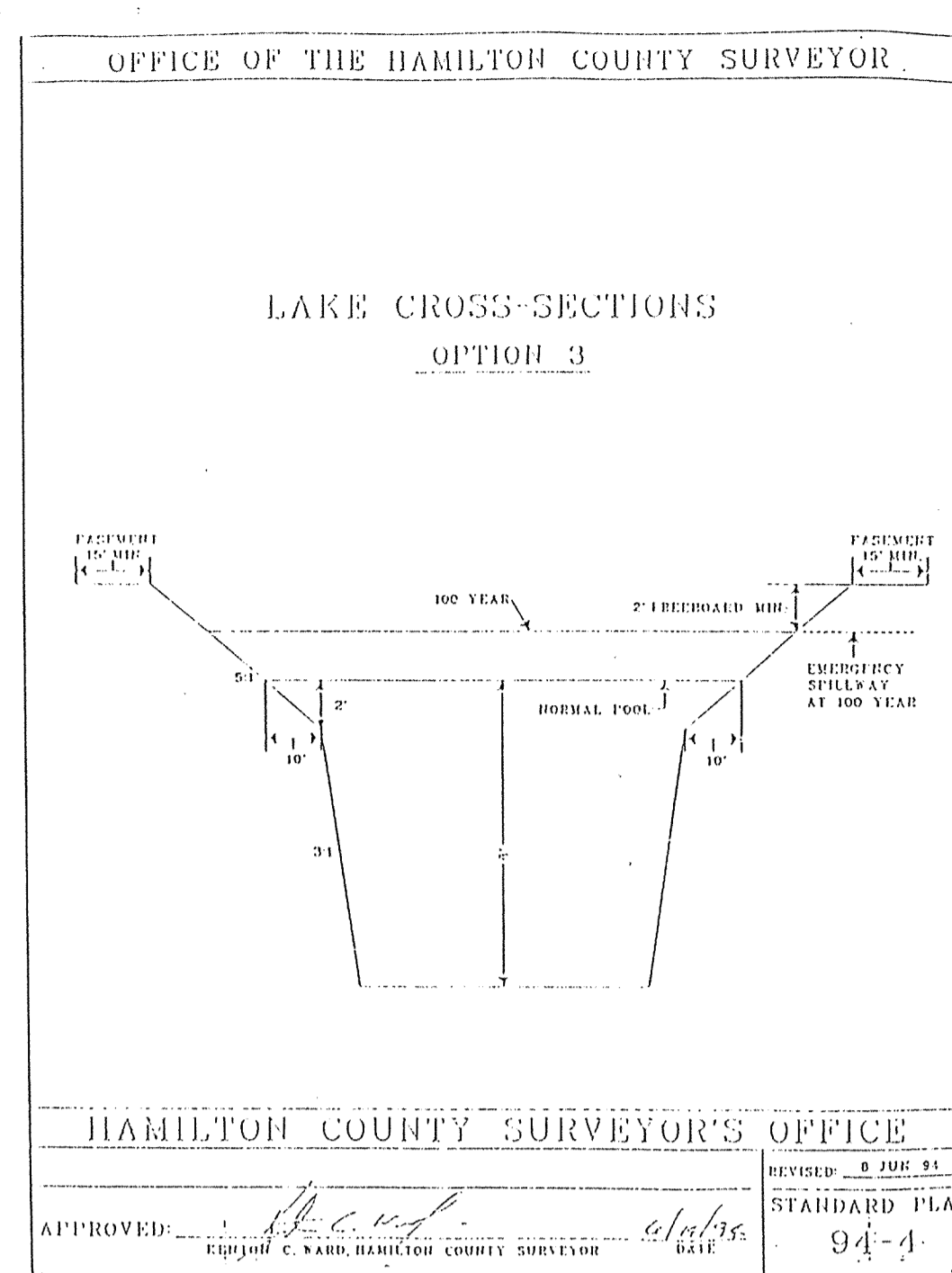
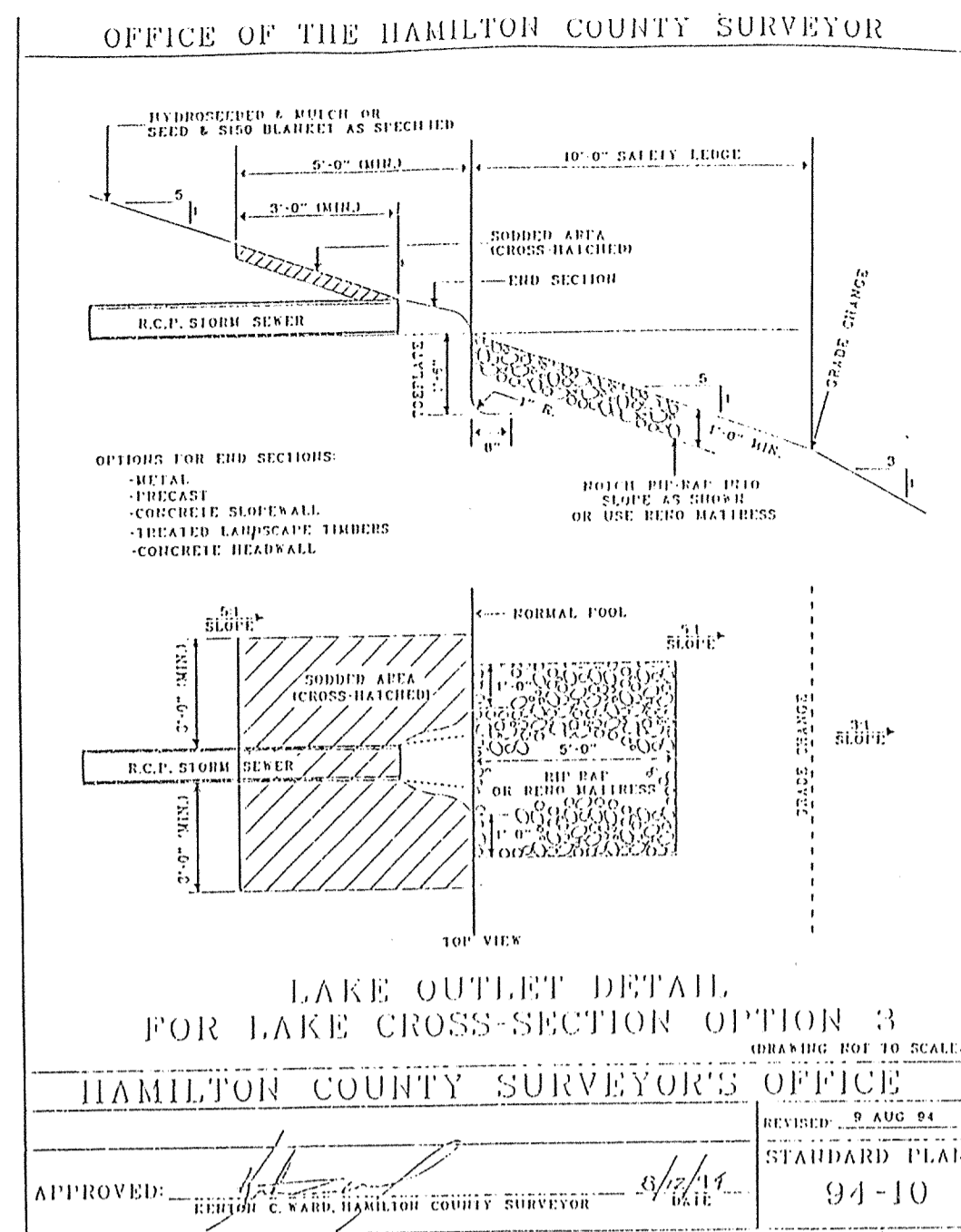
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SHEET TITLE: GENERAL DETAILS
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SHEET NO.: C801



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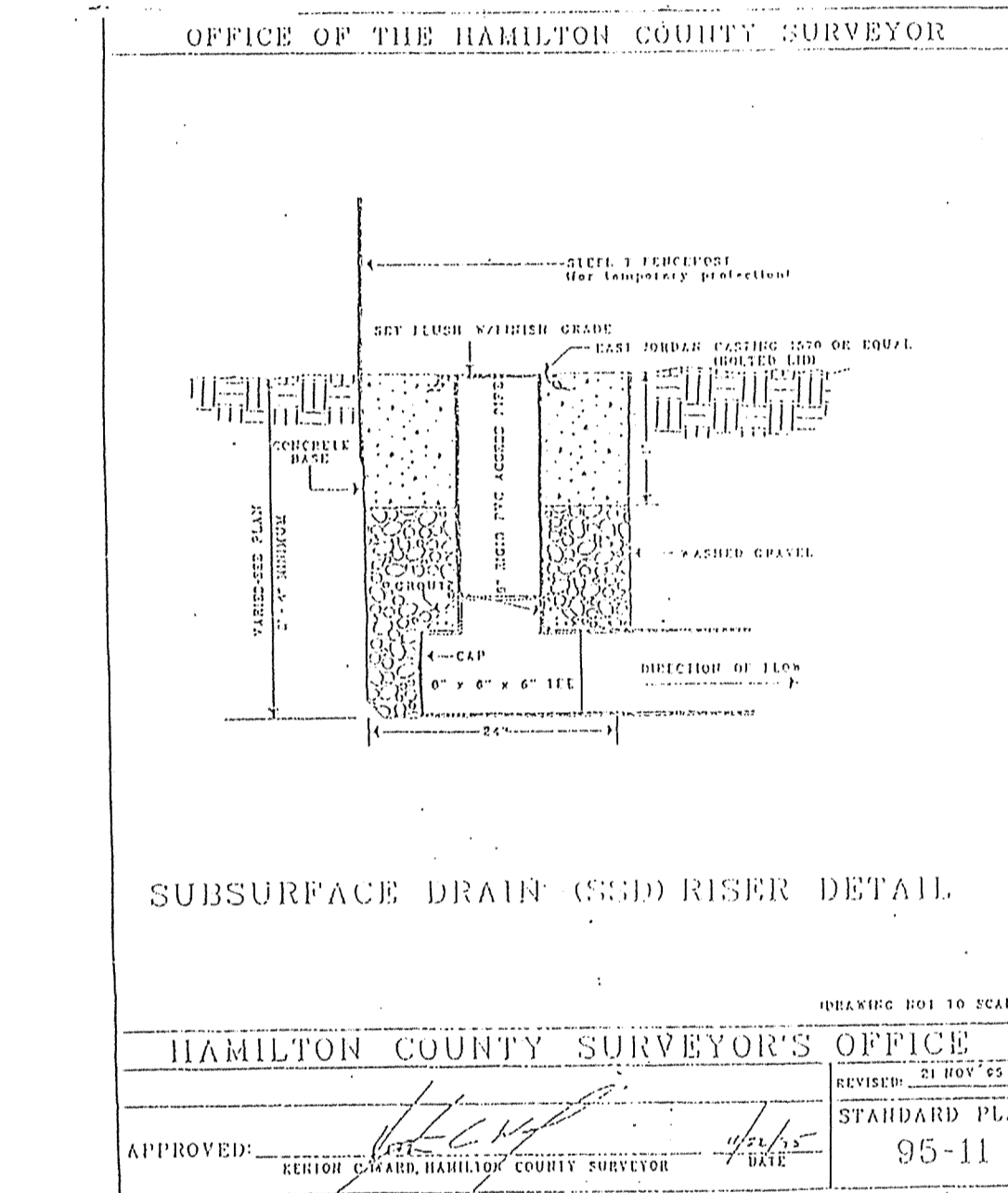
CURB INLET (Page 1)

CURB INLET TABLE

PIPE SIZE (INCHES)	REINFORCES LESS THAN 4\"/>						
12 TO 18	24 X 24	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.
18 TO 24	30 X 30	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.
24 TO 30	36 X 36	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.
30 OR LARGER	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.	APPROX.

HAMILTON COUNTY SURVEYOR'S OFFICE

APPROVED: [Signature] DATE: 95-11

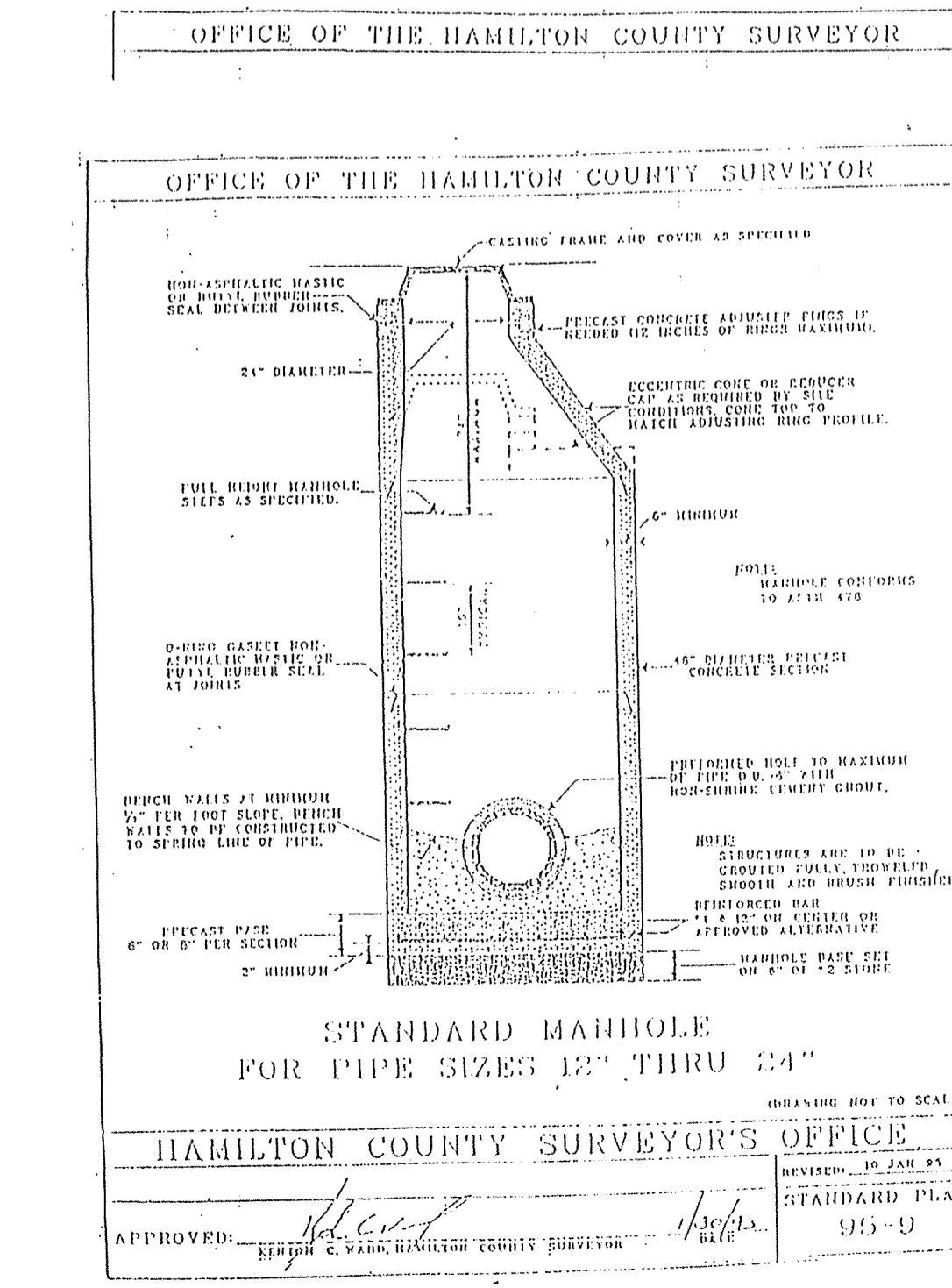
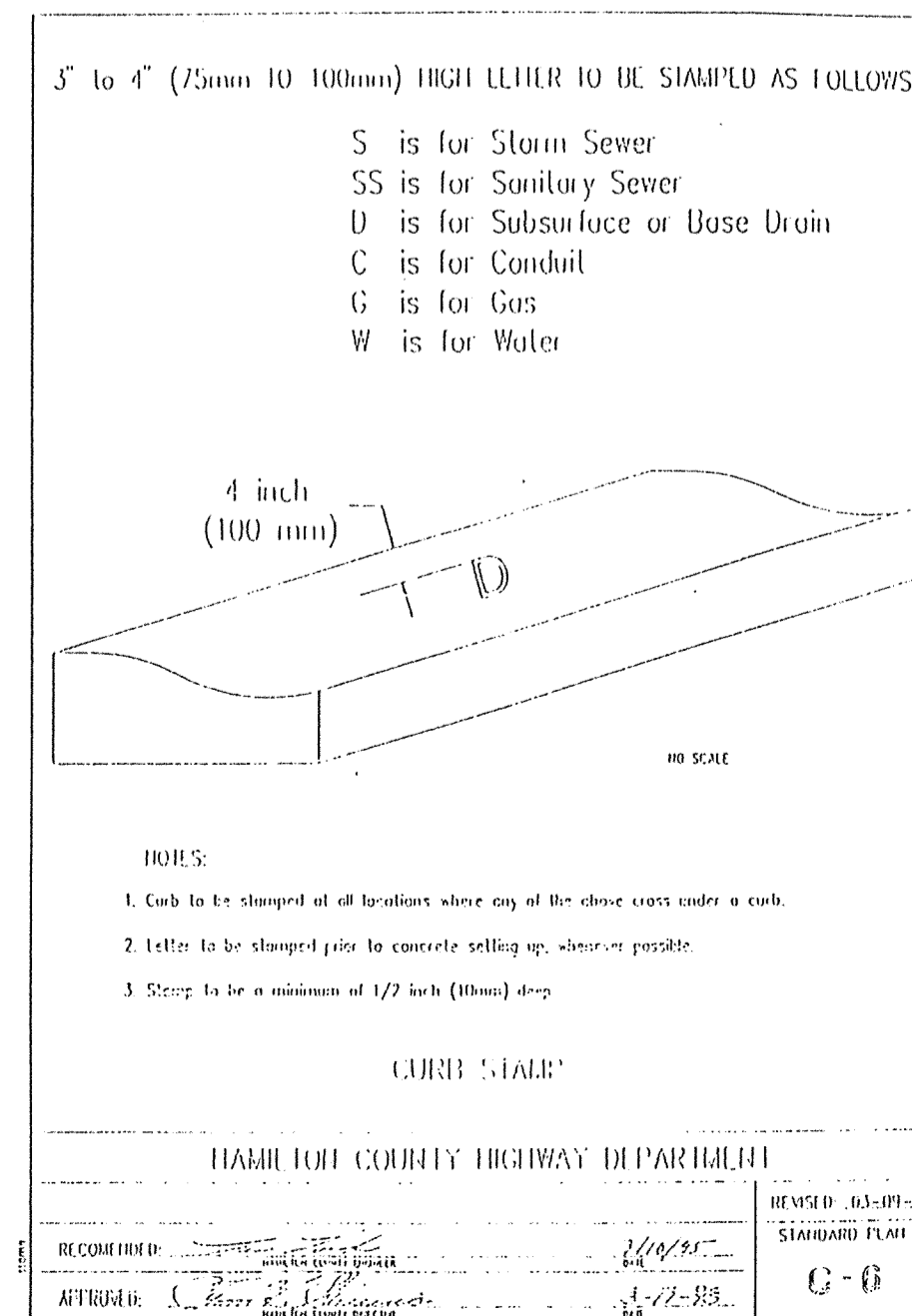


TRASH GUARDS FOR CONC. APRONS

APRON SIZE (INCHES)	TRASH GUARD SIZE (INCHES)	APRON SIZE (INCHES)	TRASH GUARD SIZE (INCHES)
12	12	18	18
15	15	24	24
18	18	30	30
21	21	36	36
24	24	42	42
27	27	48	48
30	30	54	54
36	36	60	60
42	42	66	66
48	48	72	72
54	54	78	78
60	60	84	84
66	66	90	90
72	72	96	96
78	78	102	102
84	84	108	108
90	90	114	114

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KEITH LASH
 REGISTERED
 No. 9800085
 STATE OF INDIANA
 PROFESSIONAL ENGINEER

DATE: 8/15/01

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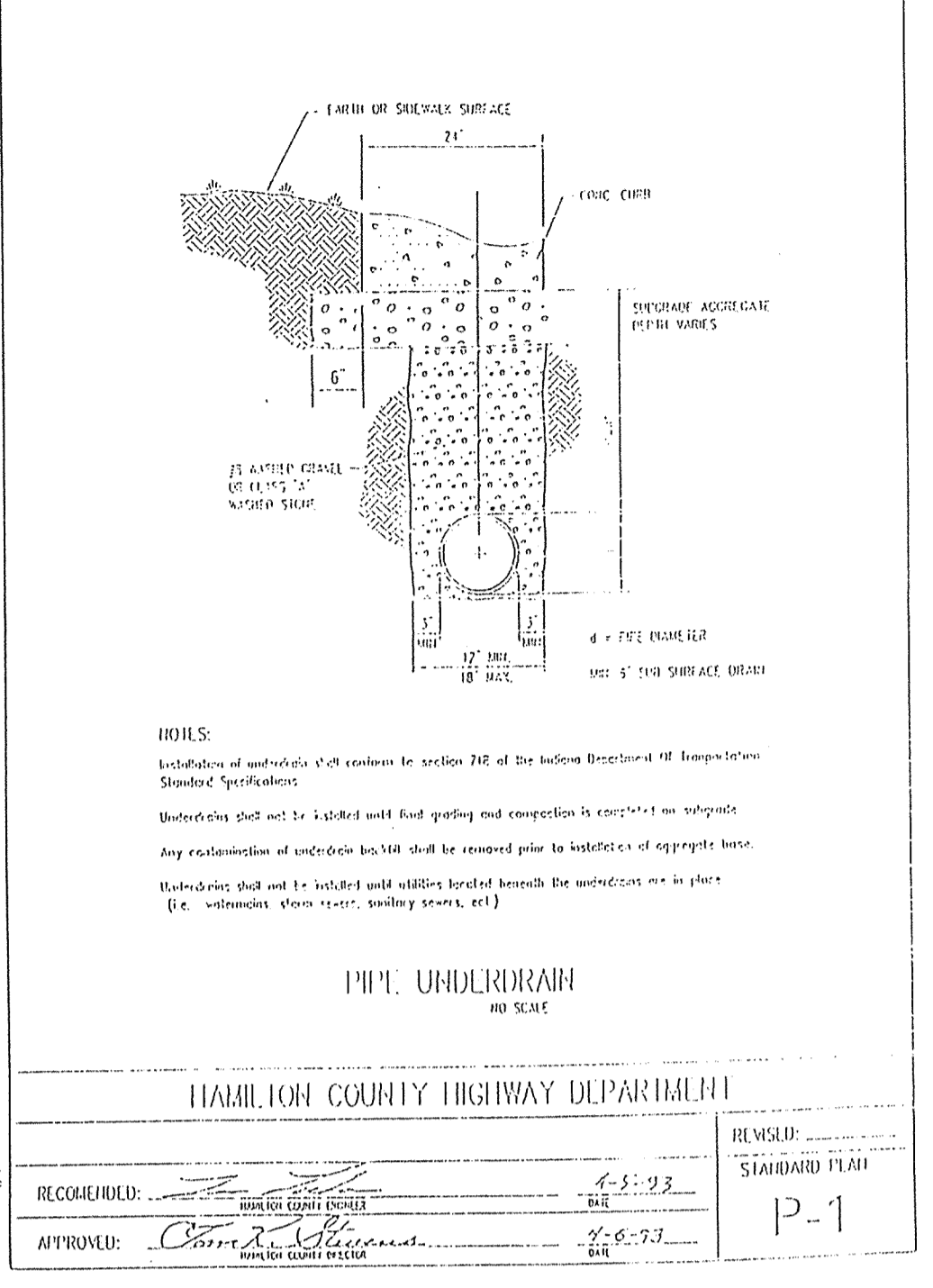
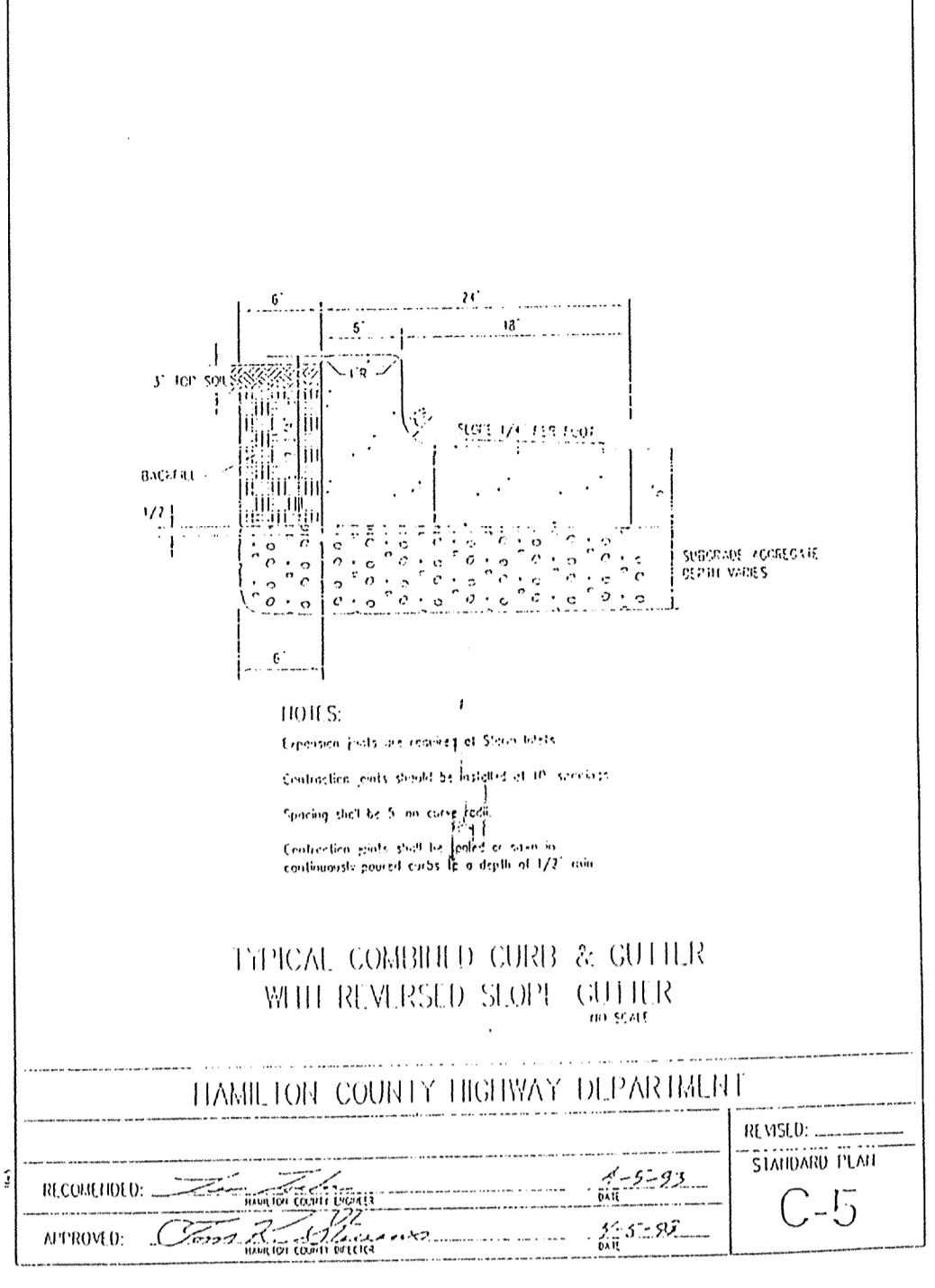
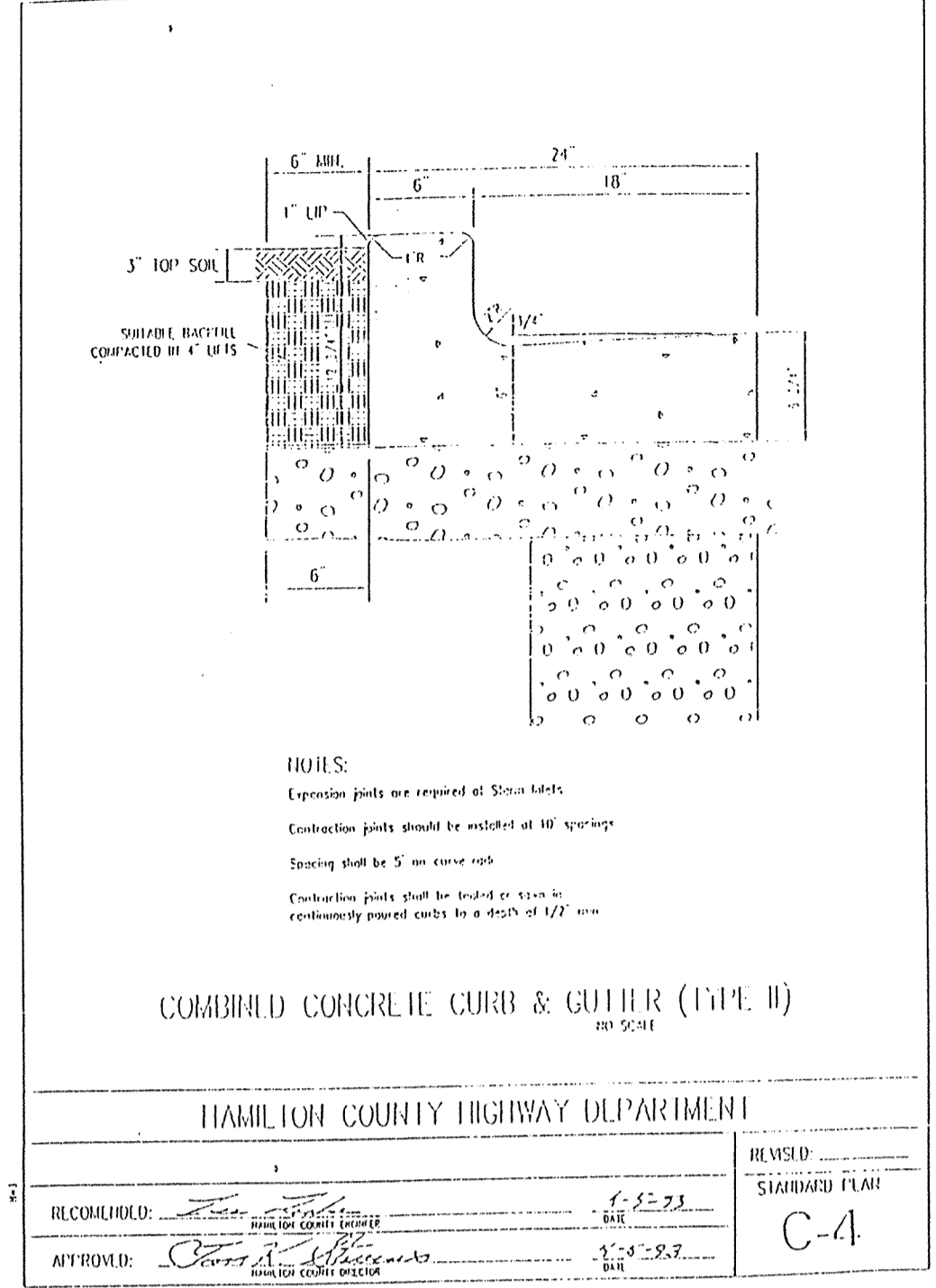
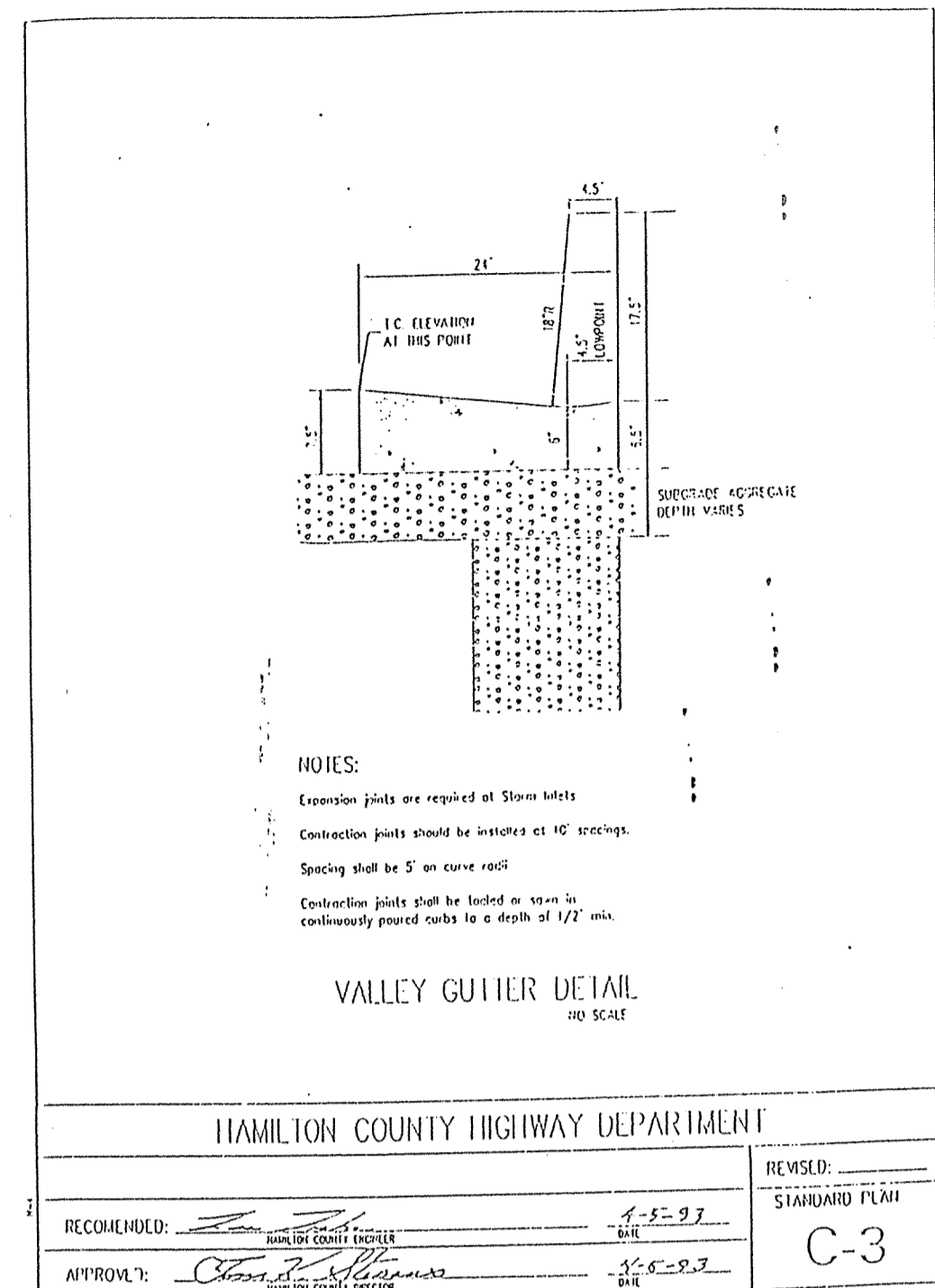
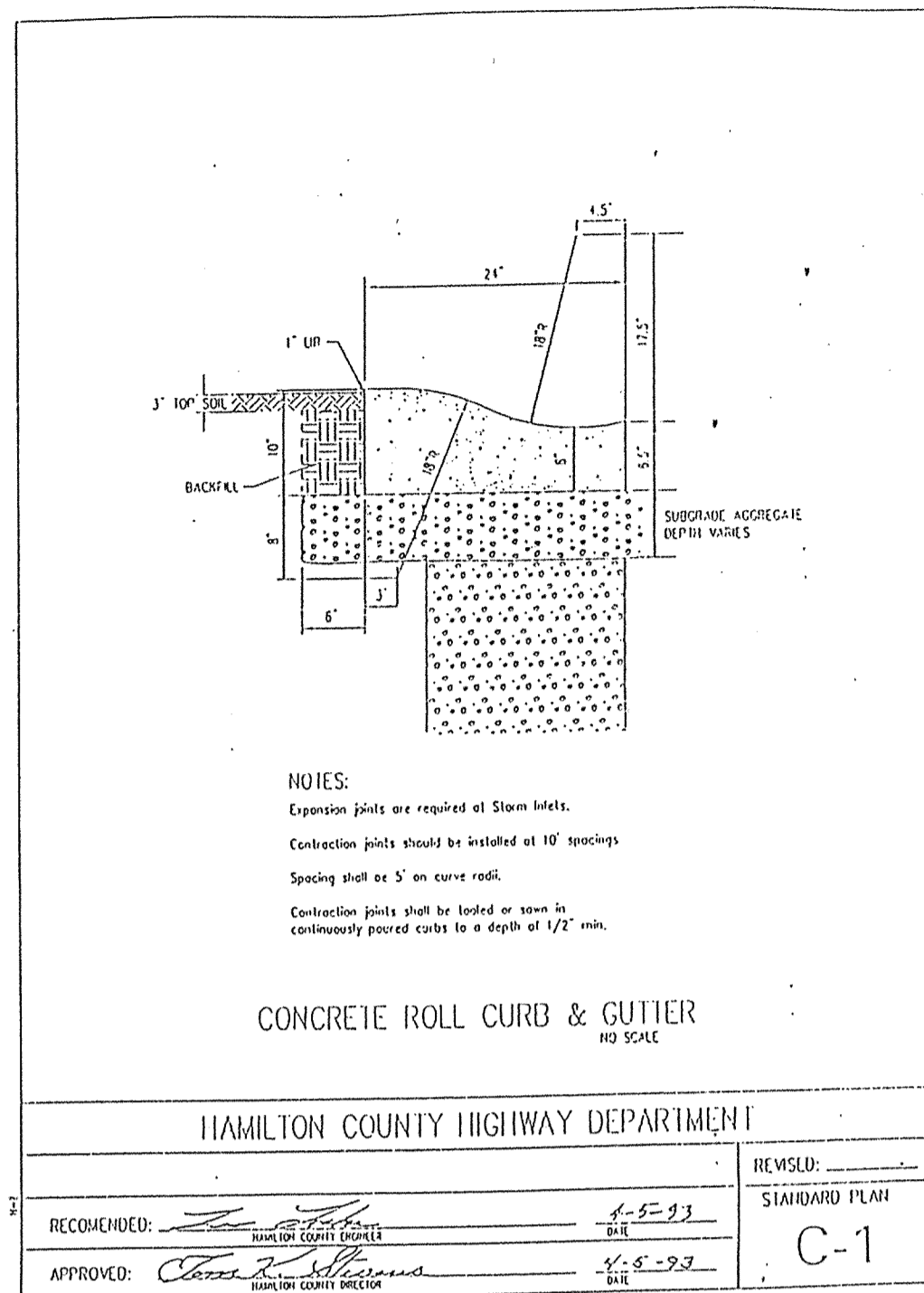
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 SHEET TITLE: HAMILTON COUNTY DETAILS
 DRAWING FILE: N:\045\004\DWG\C802.DWG
 SHEET NO: C802



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STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 8/1/01

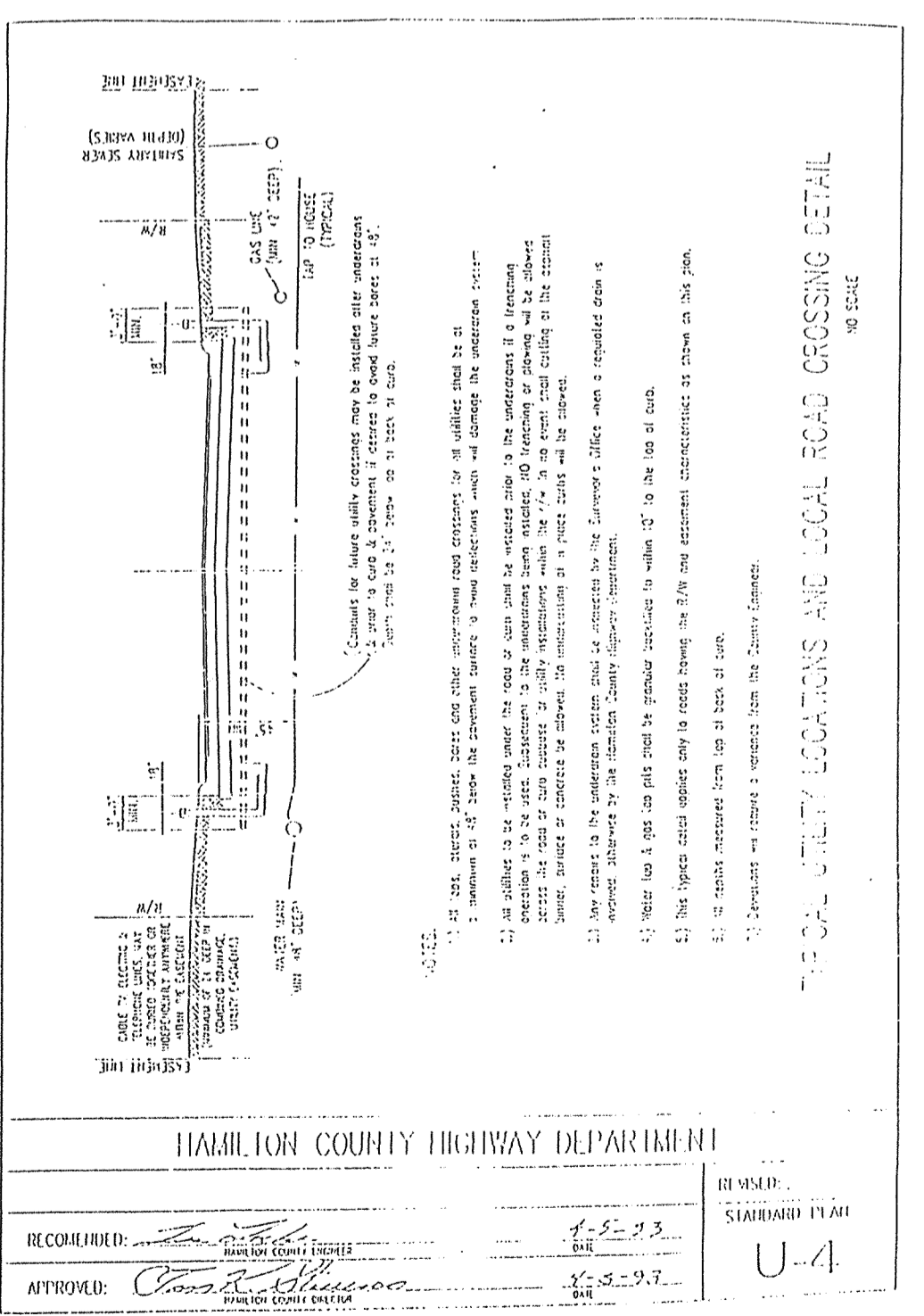
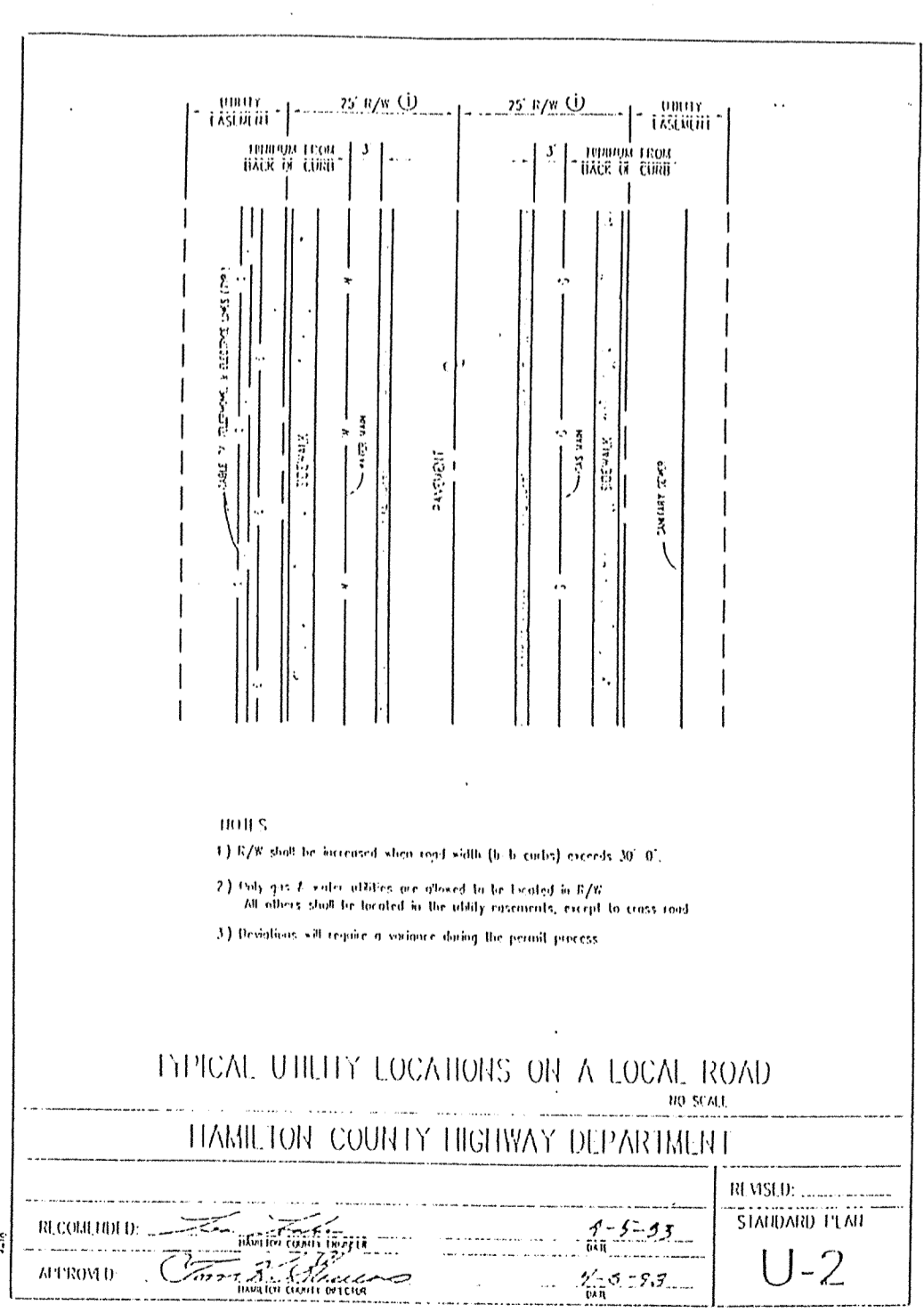
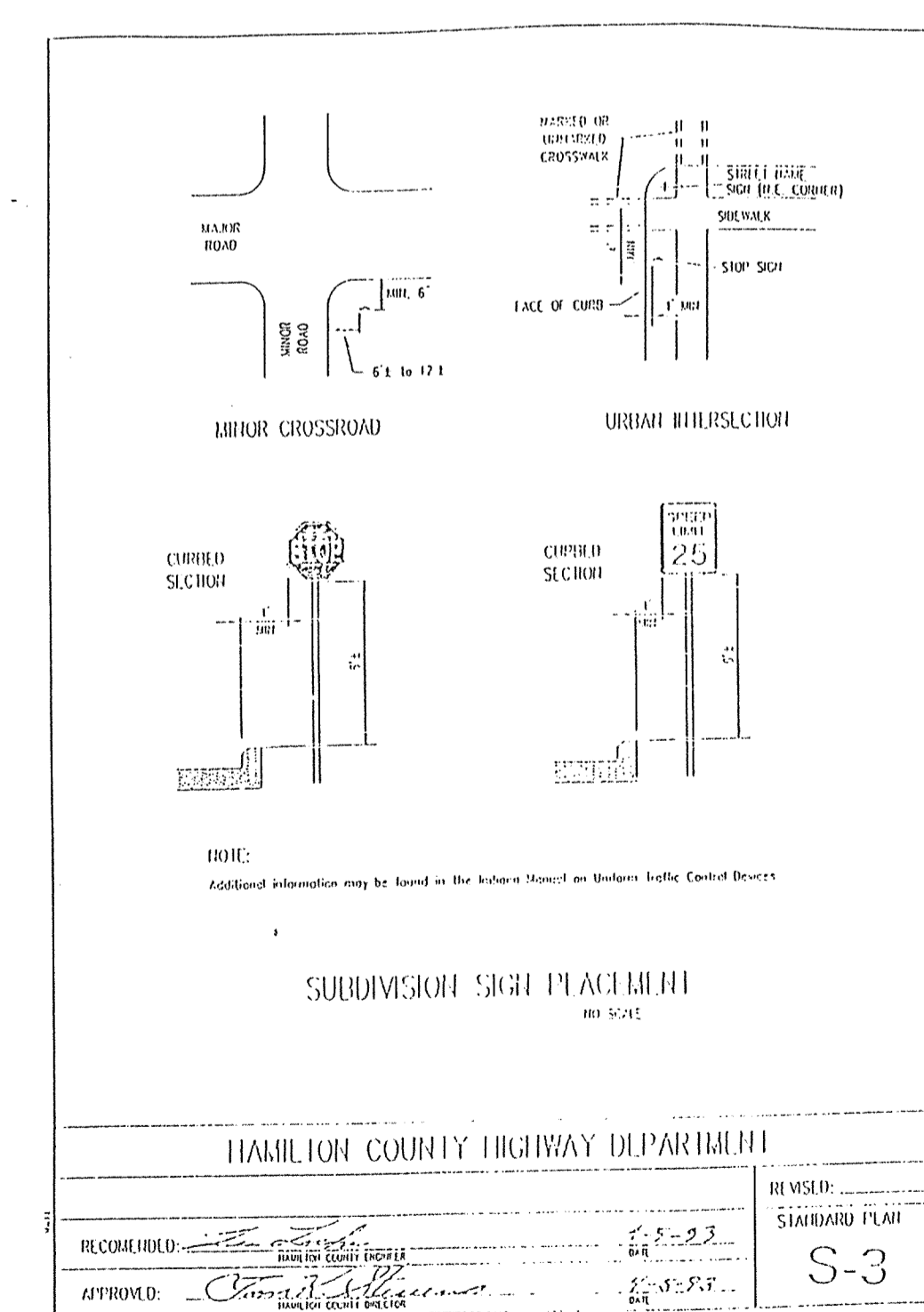
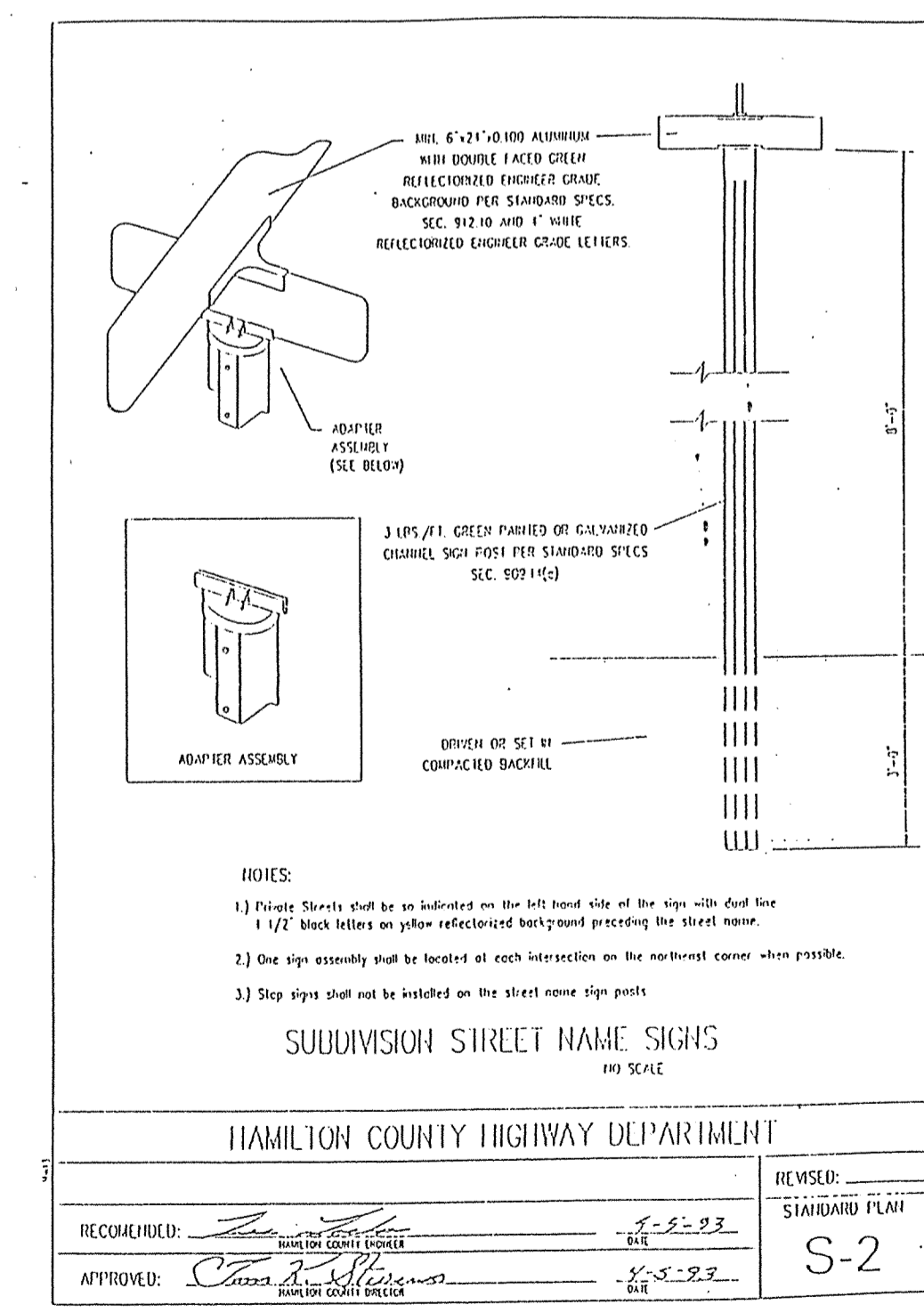
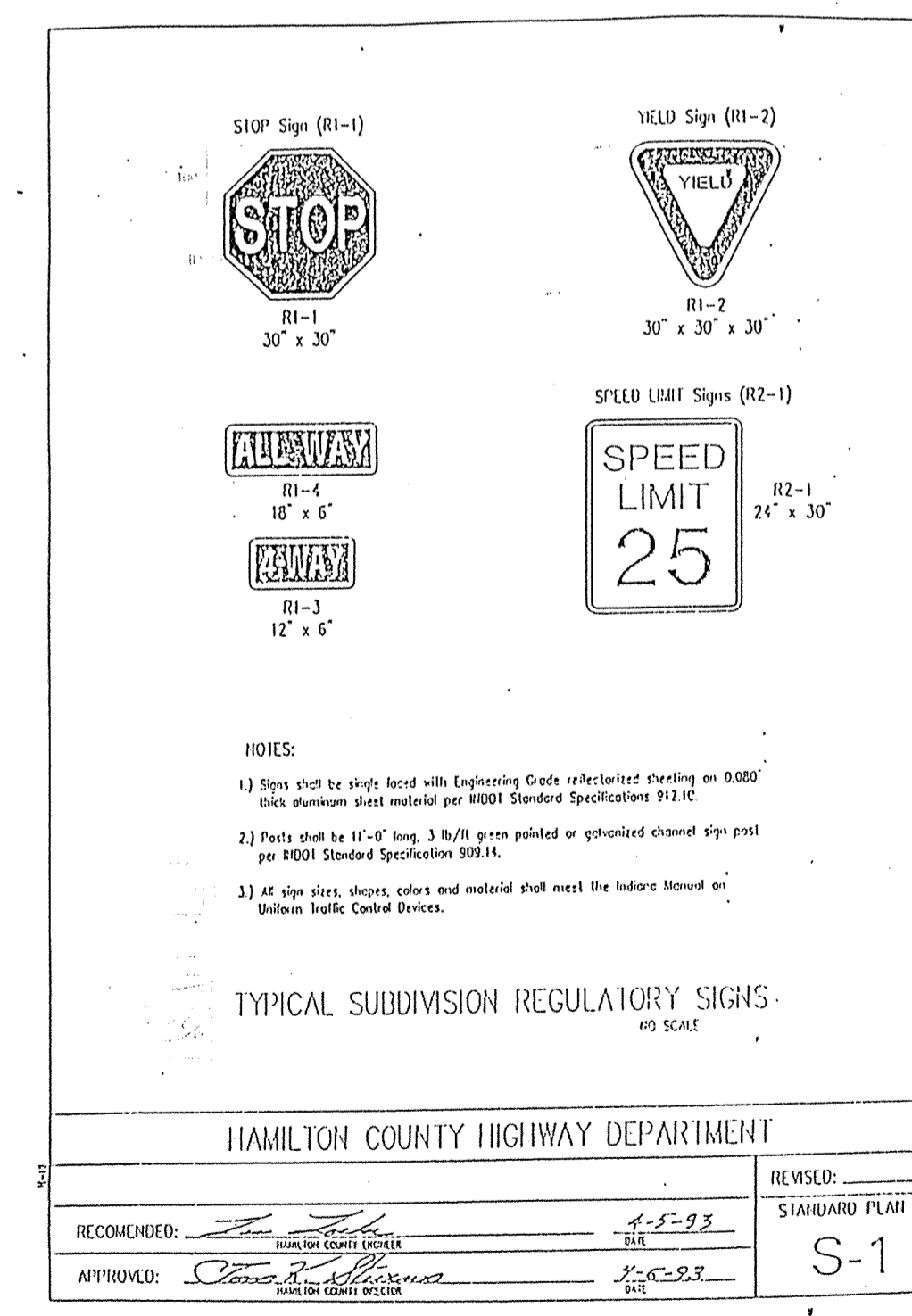
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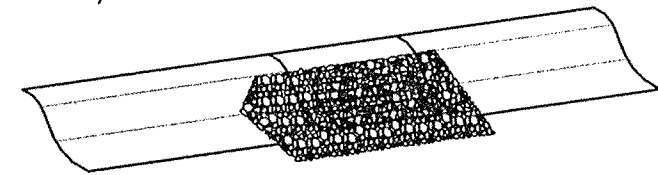
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SHEET TITLE: HAMILTON COUNTY DETAILS
DRAWING FILES: H:\1045\1045\DWG\C803.DWG
SHEET NO: C803

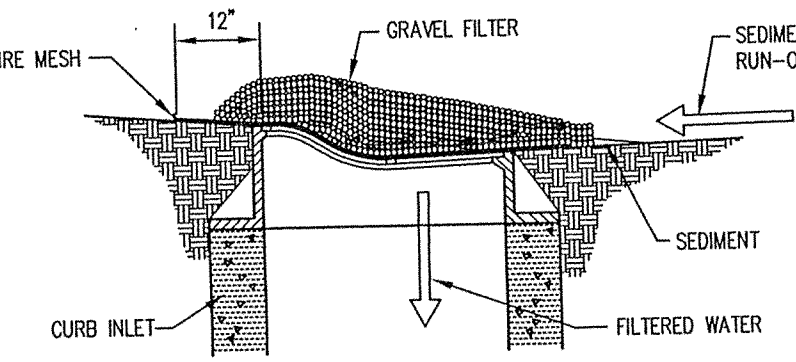
REQUIREMENTS:

CONTRIBUTING DRAINAGE AREA: 1 ACRE MAXIMUM.
CAPACITY: RUNOFF FROM A 2-YR. FREQUENCY, 24-HR. DURATION STORM EVENT ENTERING THE STORM DRAIN WITHOUT BYPASS FLOW.
LOCATION: AT CURB INLETS WHERE PONDING IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE.
GRAVEL: 1-2 IN. DIAMETER (MDOT CA No. 2).
WIRE MESH: CHICKEN WIRE OR HARDWARE CLOTH WITH 1/2 IN. OPENINGS.
GEOTEXTILE FABRIC (OPTIONAL): FOR FILTRATION.



INSTALLATION:

- INSTALL GRAVEL CURB INLET PROTECTION AS SOON AS THE STREETS ARE PAVED IN A NEW DEVELOPMENT SITUATION OR BEFORE LAND DISTURBING ACTIVITIES IN STABILIZED AREAS.
- PLACE WIRE MESH OVER THE CURB INLET OPENINGS AND/OR GRATE SO IT EXTENDS AT LEAST 12 IN. BEYOND BOTH TOP AND BOTTOM OF THE OPENING/GRADE.
- INSTALL GEOTEXTILE FABRIC OVER THE WIRE MESH FOR ADDITIONAL FILTRATION (OPTIONAL).
- PILE GRAVEL OVER THE WIRE MESH TO ANCHOR IT AGAINST THE CURB, COVERING THE INLET OPENING COMPLETELY.



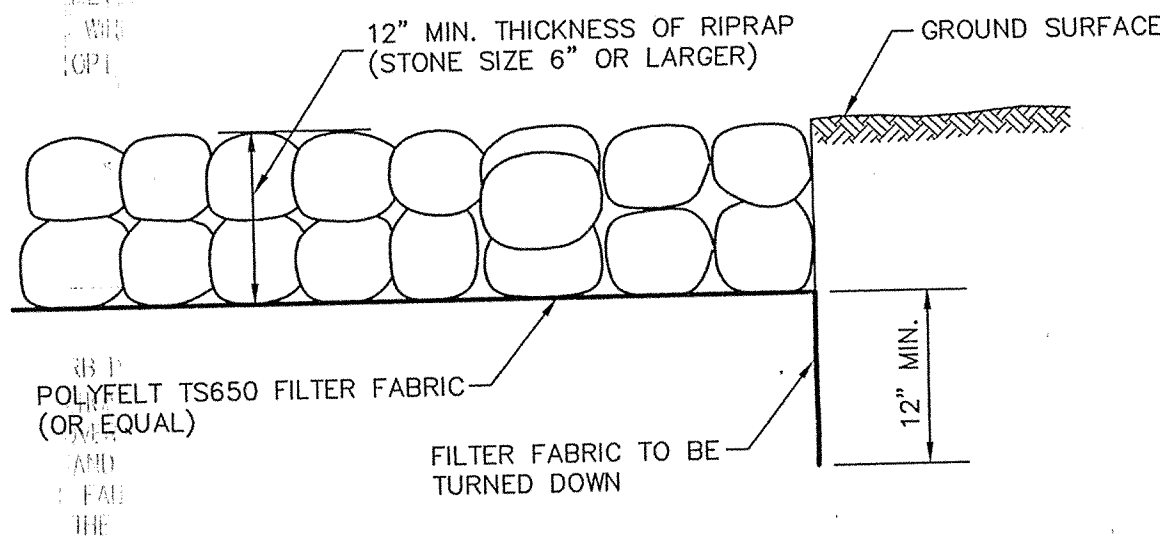
MAINTENANCE:

- AFTER EACH STORM EVENT, REMOVE SEDIMENT AND REPLACE THE GRAVEL; REPLACE THE GEOTEXTILE FILTER FABRIC IF USED.
- PERIODICALLY REMOVE SEDIMENT AND TRACKED-ON SOIL FROM THE STREET (BUT NOT BY FLUSHING WITH WATER) TO REDUCE THE SEDIMENT LOAD ON THE CURB INLET PRACTICE.
- INSPECT PERIODICALLY, AND REPAIR DAMAGE CAUSED BY VEHICLES.
- WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE GRAVEL, WIRE MESH, GEOTEXTILE FABRIC, AND ANY SEDIMENT AND DISPOSE OF THEM PROPERLY.

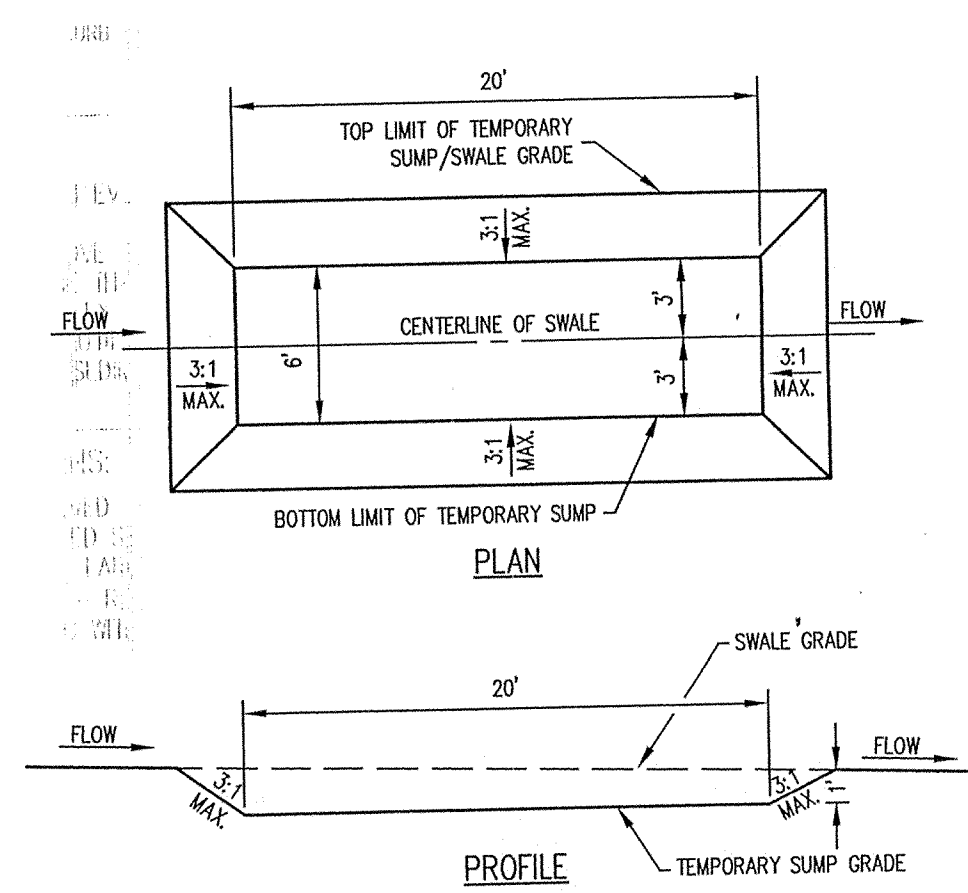
COMMON CONCERNS:

SEDIMENT NOT REMOVED FROM ROADWAY AND GRAVEL AND FABRIC NOT REPLACED FOLLOWING A STORM EVENT-- RESULTS IN INCREASED SEDIMENT TRACKING, TRAFFIC HAZARD, AND EXCESSIVE PONDING.
DRAINAGE AREA TOO LARGE -- CAUSES SEDIMENT OVERLOAD AT THE INLET AND/OR BY-PASS FLOW.
SLOPE TOO STEEP -- RESULTS IN BYPASS FLOW AND/OR DISLODGEEMENT OF THE GRAVEL AND HARDWARE CLOTH; CONSIDER REPLACING WITH OR USING IN COMBINATION WITH A SANDBAG CURB INLET PROTECTION (PRACTICE 3.64)

GRAVEL CURB INLET PROTECTION



RIPRAP/FILTER CLOTH DETAIL



TEMPORARY SILTATION SUMP DETAIL
SCALE: NONE

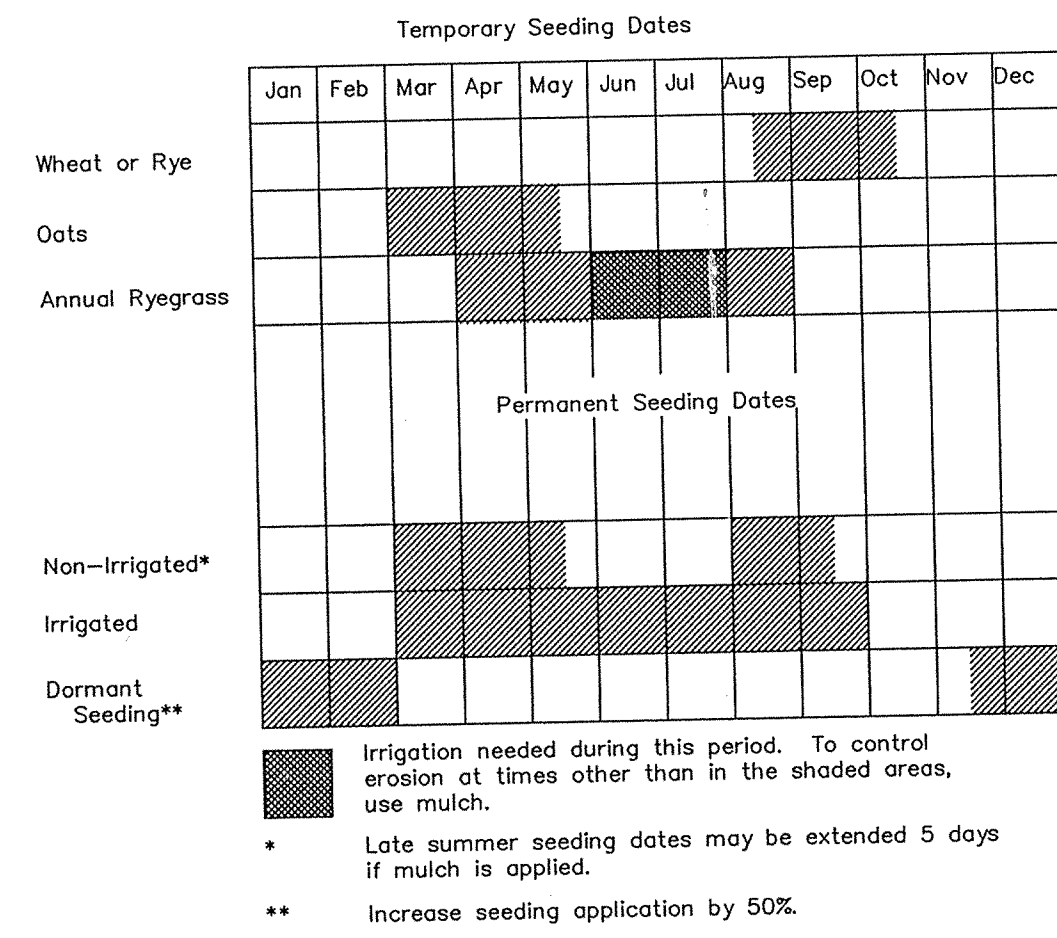


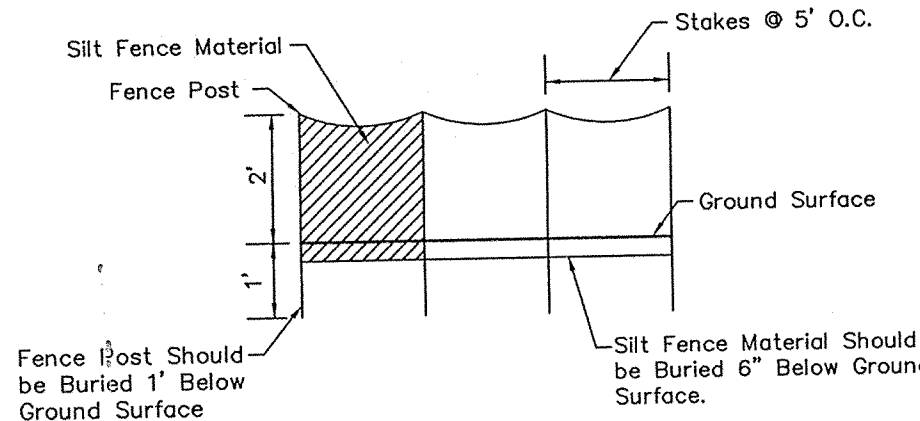
FIGURE 5-3

SILT FENCE

Silt Fence shall be a machine produced, non-woven geotextile of 100% polypropylene meeting the physical properties below.

All stakes shall be 2" X 2" hardwood 36" tall with 24" tall loth stapled to stakes over fabric as reinforcement.
All silt fence shall be prefabricated by the supplier. No field assembly will be accepted.

Fabric Weight.....	4 oz/syd
Grab Strength.....	Warp 125 lbs.
Elongation.....	Warp 50 %
Trapezoidal Tear Strength.....	50 lbs
Burst Strength.....	200 psi
UV Resistance.....	> 70 %
A.O.S.....	50-80
Slurry Flow Rate.....	225 gpm/sq. ft
Sediment Retention.....	75 %



SILT FENCE DETAIL
NTS

Kind of Seed	Temporary Seeding		Remarks
	1000 Sq. Ft.	Acre	
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*

SEEDBED PREPARATION REQUIREMENTS

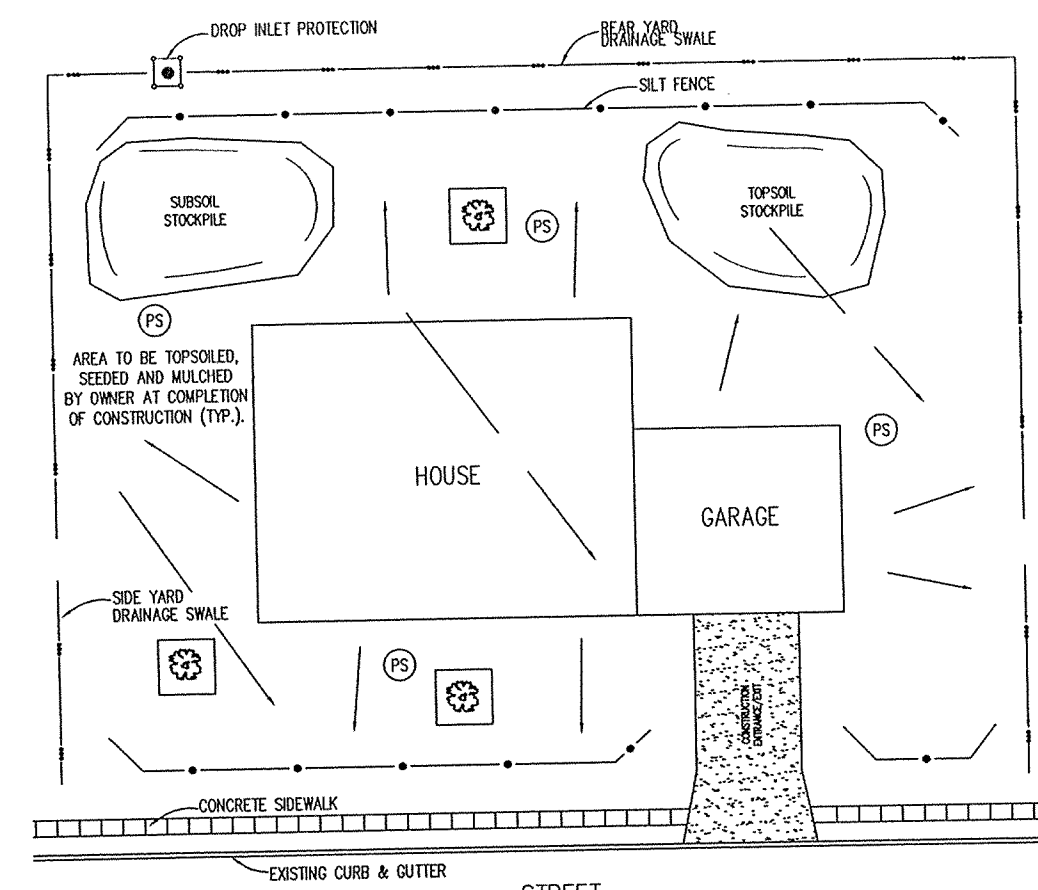
Seedbed Preparation
Apply lime to raise the pH to the level needed for species being seeded. Apply 23 pounds of 12-12-12 analysis fertilizer (or equivalent) per 1000 sq. ft. (approximately 1000 pounds per acre) or fertilizer according to test. Application of 150 lbs. of ammonium nitrate on areas low 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 tolerance areas are a problem, such as salt tolerance of seedings adjacent to streets and highways, see Figure 5-4 this sheet before final selection.

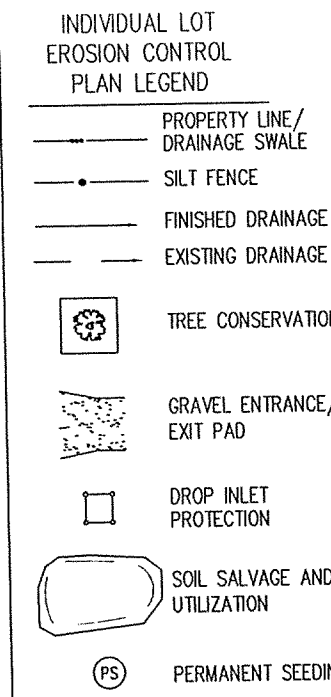
Figure 5-2: Permanent Seed Mixtures

Species	Seeding Rate lbs/acre	Sustainable pH	Site Suitability*	
			well Droughtly	Drained Wet
Level and Sloping, Open Areas				
1. Tall Fescue	35	.8	5.5-8.3	2 1 2
2. Tall Fescue Red Clover**	25	.6	5.5-8.3	1
3. Kentucky Bluegrass Creeping Red Fescue	15	.4	5.5-7.5	2 1
Steep Banks and Cuts				
4. Tall Fescue	15	.4	5.8-7.5	2 1 2
5. Tall Fescue Emerald Crownvetch**	35	.8	5.5-8.3	2 1
6. Kentucky Bluegrass Creeping Red Fescue	40	.9	5.8-7.5	2 1
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.



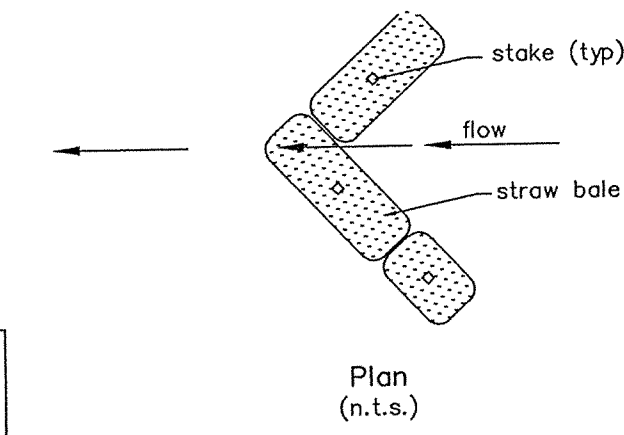
SAMPLE EROSION/SEDIMENT CONTROL PRACTICE PLAN FOR A TYPICAL ONE- OR TWO-FAMILY DWELLING UNDER CONSTRUCTION
SCALE: NONE



NOTES:
1. EROSION/SEDIMENT CONTROL MEASURES MUST BE FUNCTIONAL AND BE MAINTAINED THROUGHOUT CONSTRUCTION.
2. MAINTAIN POSITIVE DRAINAGE FLOW AWAY FROM THE STRUCTURES.

EROSION CONTROL BY HOUSE BUILDERS

- Temporary and permanent seeded areas established by the developer will be maintained by the home builder and his sub-contractors. Straw bale dams or silt fences previously installed will be maintained.
- A construction drive to the house-site from the street shall be installed of Number 2 Stone, 6" thick and a minimum of 12' wide. This shall be utilized for access to the house and any mud or dirt tracked into the street shall be promptly removed to a stable area (water shall not be used to flush silt or mud to the storm sewer).
- In a particularly persistent erosion condition, silt fencing or other measures may be required by the developer.
- When time is appropriate, and as soon as possible, roof down spout extenders of non-perforated drain tile should be extended to the street or other solid outlet until a lawn is established.



SEDIMENT FILTER DETAIL

SOIL CONDITION	Soil Salinity				Troughing Tolerance (ppm)	Winter Hardiness	Phytotoxic Tolerance (ppm)	Mature Height (feet)	Emergence Time (days)	Salt Tolerance	
	Wet	Normal	Dry	Shade						Gen.	Soil Spray
Creeping Red Fescue Festuca rubra	2	1	2	1	1	Med.	1	20-25	12-18	7-21	S
Kentucky Bluegrass Poa pratensis	2	1	2	1	1	Med.	1	25-35	12-18	10-20	MT
Tall Fescue Festuca L. arundinacea	2	1	1	1	1	Low	1	24-35	24-36	5-14	T
Perennial ryegrass Lolium perenne	2	1	2	-	1	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

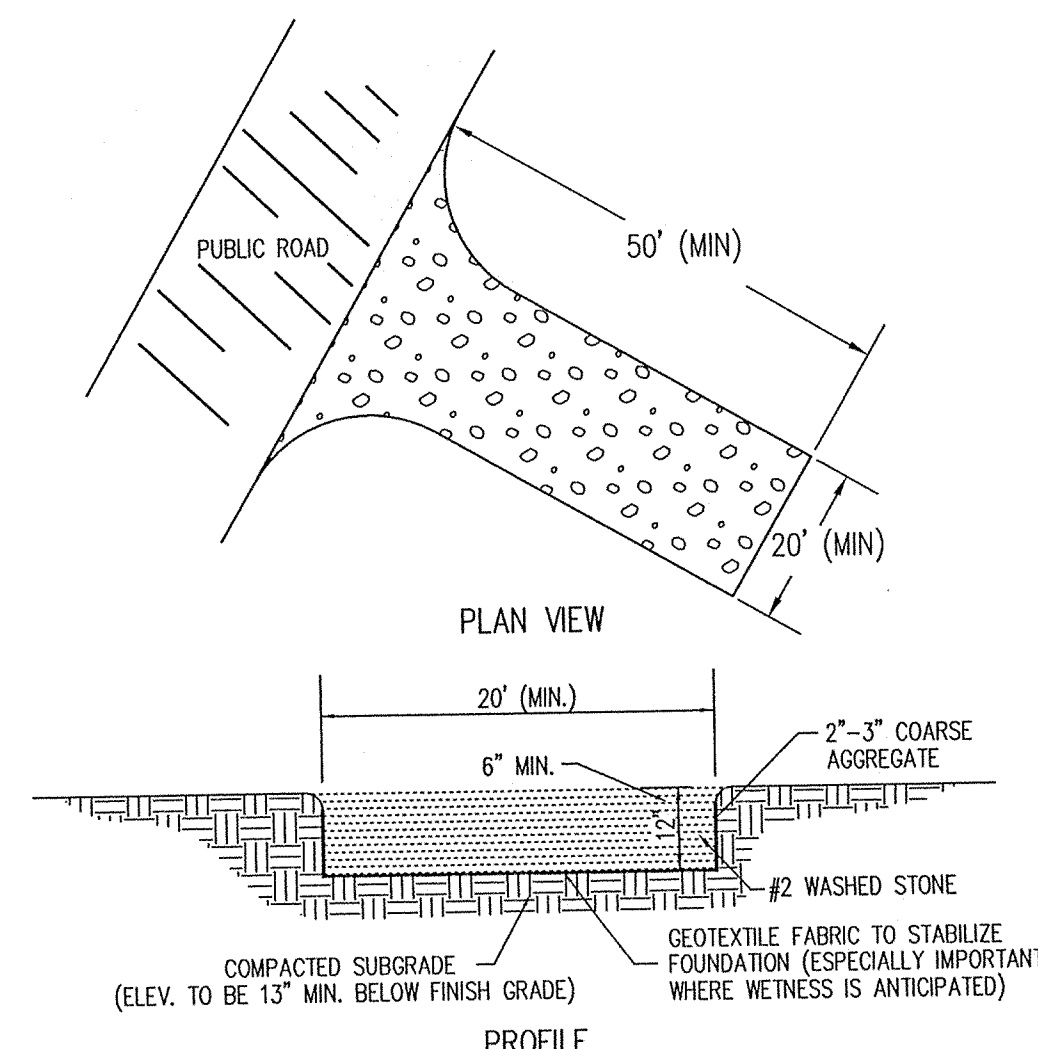
EROSION AND SEDIMENT CONTROL PLAN SUMMARY AND "RULE 5" DATA

PROJECT: MERRIMAC, SECTION 6
NATURE & PURPOSE: 29 Lot residential subdivision
ESTIMATED START: September 1, 2001
ESTIMATED COMPLETION OF SITE DEVELOPMENT: November 31, 2002
ESTIMATED COMPLETION OF HOME CONSTRUCTION: November 31, 2003
FLOODPLAINS, FLOODWAY FRINGS, FLOODWAYS: None
LAKES, STREAMS, CHANNELS, DITCHES, WETLANDS, etc.: Existing Charles Osborn legal drain.
EXISTING SOIL TYPES & DESCRIPTION:
Brookston Silty Clay Loam: Poorly drained, moderately permeable.
Crosby Silty Loam: Deep, somewhat poorly drained.
Paltan Silty Clay Loam: Poorly drained, moderately permeable.
RECEIVING WATERS: Charles Osborn legal drain to Williams Creek.
POTENTIAL AREAS WHERE STORMWATER MAY ENTER GROUNDWATER: None known
EXISTING LAND VEGETATION: The majority of the site is cultivated

ADJACENT LAND USE:

North: Centennial Section 1
South: Ponds West Residential
West: Agricultural
East: Multifamily
CONTACT PERSON:
John Talbot
Merrimac Corporation
582 South Rangeline Road
Carmel, Indiana 46032
(317) 844-5111

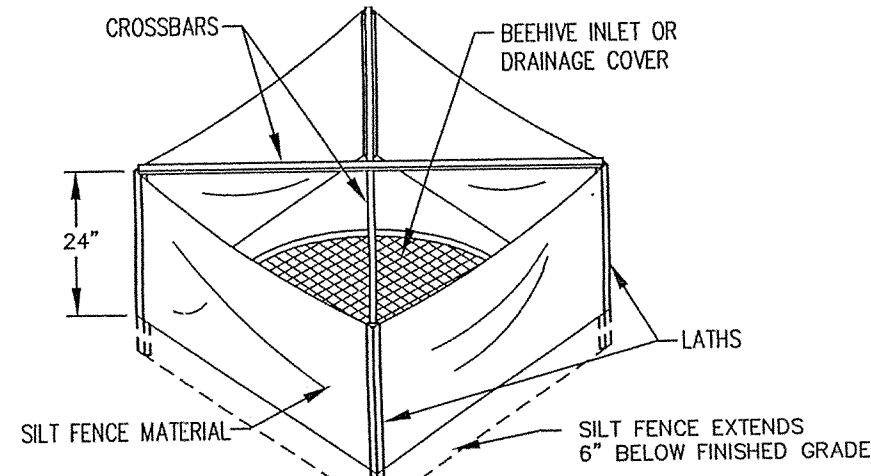
SITE SPECIFIC SEQUENCE AND ADDITIONAL NOTES:
Construction and Stabilization of the Sediment Basin should be complete as early as possible to intercept any silt from upstream drainage area. Inlet silt protection should be installed immediately after Storm Sewer installation.



TEMPORARY CONSTRUCTION ENTRANCE DETAIL

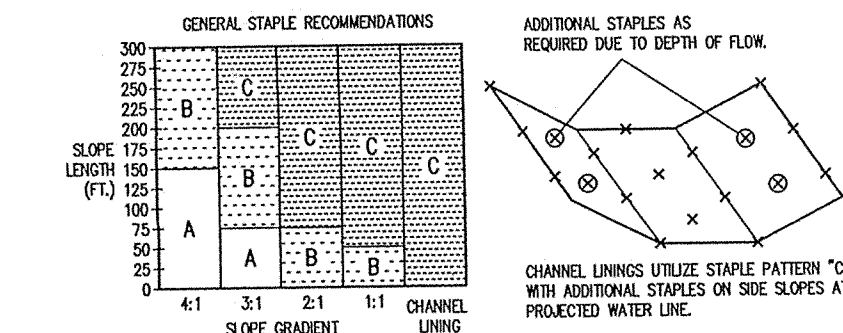
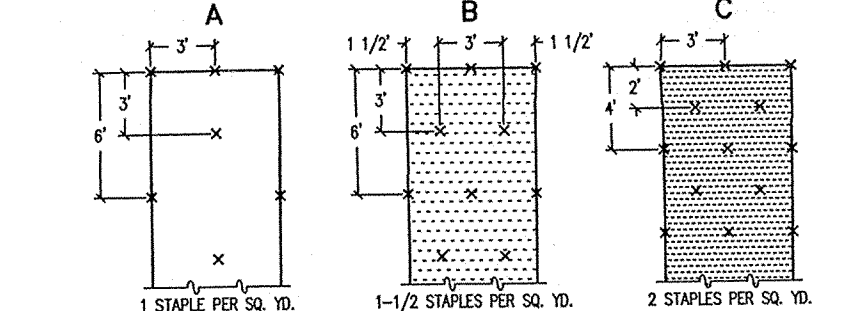
EROSION CONTROL MEASURES MAINTENANCE REQUIREMENTS

- STRAW BALE DAM MAINTENANCE REQUIREMENTS**
- INSPECT STRAW BALE DAMS AFTER EACH STORM EVENT AND PROMPTLY REMOVE ANY SEDIMENT EXPOSURE TO ENSURE ADEQUATE STORAGE VOLUME FOR THE NEXT BARR, TAKING CARE NOT TO UNDERMINE THE ENHANCED BARRS.
 - INSPECT PERIODICALLY FOR DETERIORATION OR DAMAGE FROM CONSTRUCTION ACTIVITIES AND REPAIR IMMEDIATELY.
 - AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ALL STRAW BALES AND SEDIMENT, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE IT.
- SILT FENCE MAINTENANCE REQUIREMENTS**
- INSPECT THE SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT.
 - IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
 - REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR IS CAUSING THE FABRIC TO BULGE.
 - TAKE CARE TO KEEP UNDERMINING THE FENCE DURING CLEAN OUT.
 - AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE.
- TEMPORARY SEDIMENT TRAP MAINTENANCE REQUIREMENTS**
- INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH STORM EVENT AND IMMEDIATELY REPAIR ANY EROSION AND PIPING HOLES.
 - REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH.
 - REPLACE SPILLWAY GRAVEL FACING IF CLOGGED.
 - INSPECT VEGETATION, AND RE-SEED IF NECESSARY.
 - CHECK THE SPILLWAY DEPTH PERIODICALLY TO ENSURE A MINIMUM OF 1.5 FT. DEPTH FROM THE LOWEST POINT OF THE SETTLED SEDIMENT TO HIGHEST POINT OF THE SPILLWAY GRESS, AND FILL ANY LOW AREAS TO MAINTAIN DESIGN ELEVATION.
 - PROMPTLY REPLACE ANY DISPLACED RIPRAP, BEING CAREFUL THAT NO STONES IN THE SPILLWAY ARE ABOVE DESIGN GRADE.
 - AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND SEDIMENT, SMOOTH THE SITE TO BLEND WITH ADJACENT AREAS, AND STABILIZE.
- SANDBAG CURB INLET SEDIMENT BARRIER MAINTENANCE REQUIREMENTS**
- INSPECT FREQUENTLY FOR DAMAGE BY VEHICULAR TRAFFIC, AND REPAIR IF NECESSARY.
 - INSPECT AFTER EACH STORM EVENT.
 - REMOVE SEDIMENT, WITHOUT FLUSHING, WHEN IT REACHES HALF THE HEIGHT OF THE SANDBAGS.
 - DEPOSIT REMOVED SEDIMENT WHERE IT WILL NOT ENTER STORM DRAINS.
- BLOCK AND GRAVEL CURB INLET PROTECTION MAINTENANCE REQUIREMENTS**
- AFTER EACH STORM EVENT, REMOVE THE SEDIMENT AND REPLACE THE GRAVEL; REPLACE THE GEOTEXTILE FABRIC, IF USED.
 - PERIODICALLY REMOVE SEDIMENT AND TRACKED-ON SOIL FROM THE STREET, WITHOUT FLUSHING, TO REDUCE THE SEDIMENT LOAD ON THE CURB INLET PROTECTION.
 - INSPECT PERIODICALLY FOR DAMAGE AND REPAIR KEEP GRATES FREE OF DEBRIS.
 - WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE GRAVEL, WIRE MESH, GEOTEXTILE FABRIC, AND ANY SEDIMENT, AND DISPOSE OF THEM PROPERLY.
- EROSION CONTROL BLANKET (SURFACE APPLIED) MAINTENANCE REQUIREMENTS**
- DURING VEGETATIVE ESTABLISHMENT, INSPECT AFTER STORM EVENTS FOR ANY EROSION BELOW THE BLANKET.
 - IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING IT, AND SOIL RE-SEED THE AREA, AND RE-LAY AND STAPLE THE BLANKET.
 - AFTER VEGETATIVE ESTABLISHMENT, CHECK THE TREATED AREA PERIODICALLY.
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE REQUIREMENTS**
- INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
 - RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
 - EXPRESS WITH CLEAN STONE AS NEEDED.
 - IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
 - REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

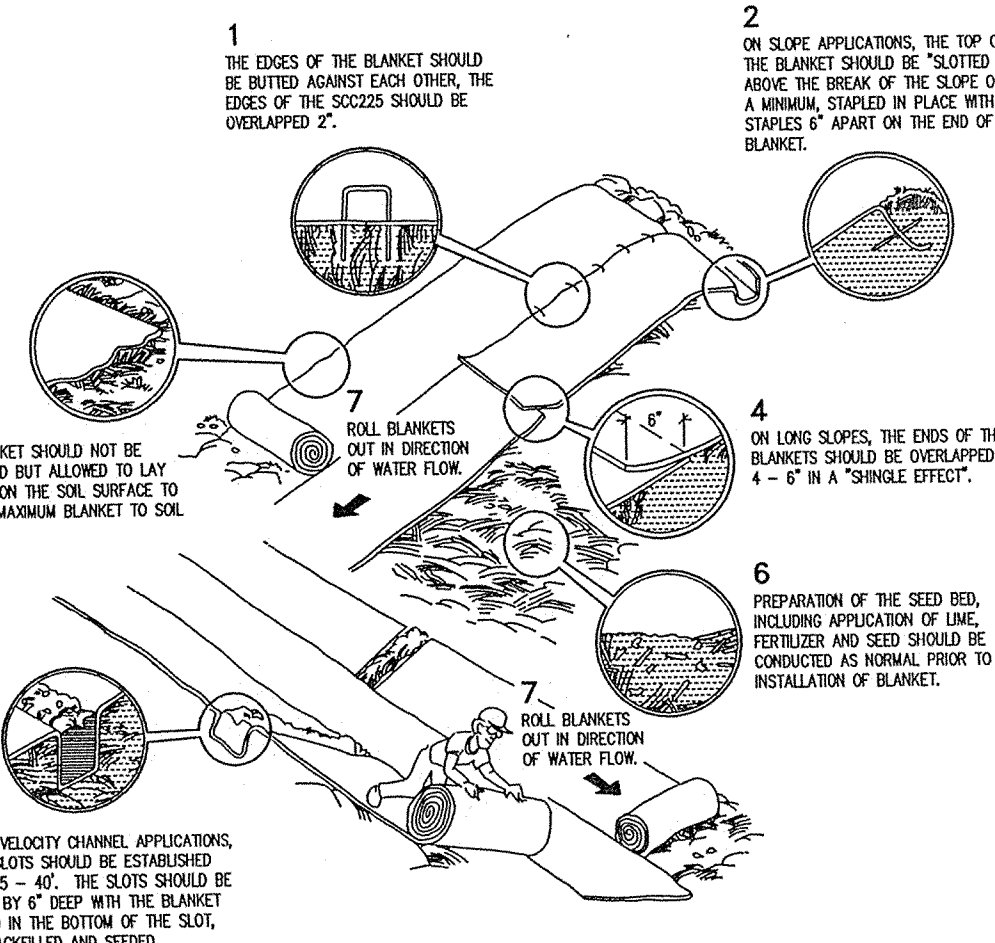


NOTE:
1. SEE SILT FENCE DETAIL FOR MATERIAL SPECIFICATIONS.
2. SILT FENCE SHOULD BE PREASSEMBLED BY SUPPLIER.

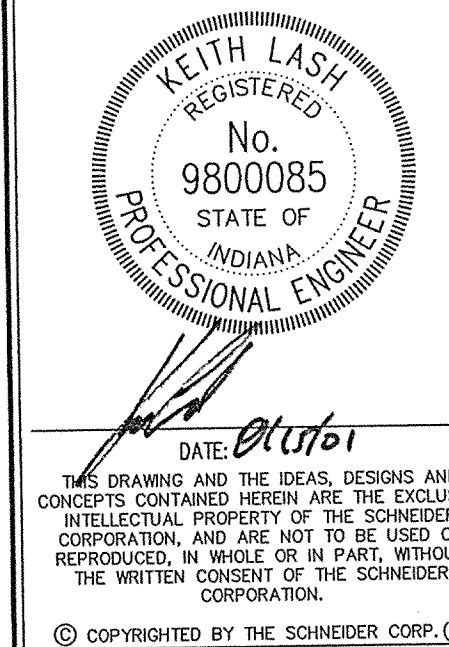
INLET PROTECTION - SILT FENCE



STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE ANNUAL RAINFALL.
AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.



EROSION BLANKET INSTALLATION



THE SCHNEIDER CORPORATION
12821 E. New Market Street
Suite 100
Carmel, IN 46032
Telephone: 317.569.8112
Fax: 317.826.6410
www.schneidercorp.com

Architecture
Civil Engineering
Environmental Engineering
Geotechnical Services
GIS * LIS
Home Builder Services
Interior Design
Land Surveying
Landscape Architecture
Transportation Engineering

MERRIMAC
SECTION 6
WESTFIELD, INDIANA
MERRIMAC CORP.
CARMEL, INDIANA

FILED
SEP 12 2001

DATE: 8/15/01 PROJECT NO.: 1045.004
DRAWN BY: MG CHECKED BY:

SHEET TITLE:
EROSION CONTROL DETAILS
DRAWING FILES:
N:\1045\1045\DWGS\C804.DWG

SHEET NO.:
C804

WATER MAINS

- 1. SCOPE OF WORK:**
- A. The work required under this section includes all cold water distribution lines, valves, hydrants, and related items including excavating and backfilling necessary to complete the work shown on the drawings. The ends of water service lines shall be tightly plugged or capped at the terminal points pending the plumbing specifications and architectural drawings.
- 2. MATERIALS:**
- A. **Cast Iron Pipe:** Cast iron pipe shall meet AWWA Specification C-106 with push-on joints meeting AWWA Specification C-111. Wall thickness shall be determined from Table 6.4 in AWWA C-106. Ductile iron pipe shall meet AWWA C-150 and C-151 Specifications. Pipe to be cement lined per AWWA C-104.
- B. **Copper Tubing:** Shall be seamless, annealed copper tubing complying with Federal Specification WW-T-799. Fittings shall be wrought copper or cast bronze with solder joints. Solder shall be of a composition recommended by the manufacturer of the fittings.
- C. **Fire Hydrants:** Shall comply with AWWA Specification C-502 and shall meet local standards and requirements, particularly as to nozzle diameters and threads, direction of opening and dimensions of opening and cap nuts. Fire hydrants shall have one pump and two hose nozzles. A valve opening not less than 5 inches and a 6 inch inlet connection. The length of the hydrant barrel shall be determined by the specified depth of cover over the pipe.
- D. **Valves:** All valves and stops shall have ends milled or adapters shall be provided for the proper installation in the lines in which they are located. Valves shall meet local standards or in the absence of such standards, the following requirements:
1. Valves in cast iron pipe shall be iron body, bronze mounted, disc gate valves conforming to AWWA Specification C-500. They shall open in the same direction as those used in the local waterworks system. Valve stems shall terminate in 2 inch wrench nuts. Furnish two (2) keys.
 2. Valves in copper pipe shall be standard brass body, round-way, ground-key stops with T heads. Furnish two (2) keys.
- E. **Valve Boxes:** Shall meet local standards or in the absence of such, shall comply with the following requirements:
1. For iron body valves, boxes shall be approved standard buffalo-type, cast iron, adjustable shaft boxes, having a minimum shaft diameter of 5-1/4 inches.
 2. For brass body valves (stops) boxes shall be approved standard cast iron extension service boxes, having a minimum diameter of 2-1/2 inches and having lid held in place by a brass or bronze bolt. The castings shall be coated with two coats of copd-lac pitch varnish. Furnish two (2) keys for bolt in lids.
- F. **Stops:** Stop shall be those manufactured by Ford or Mueller Corporation with AWWA taper thread, and with copper compression type fitting on outlet, or equal.
- G. **Blow-off Valves:** Blow-off valves shall be those manufactured by Muller Corporation (H-10283 or H-10281), or equal.
- H. **Angle Valves:** Angle valves at the end of water service stub are to be copper compression type fitting also, and are to be protected with plastic bag over the valve.
- I. **Taps:** 3/4" taps in lines smaller than 4 inches shall be only by tapped tee or tapping saddle. Water service lines should be marked on curbs with a stamped "W", placed white pouring curbs.
- 3. APPLICATION:**
- A. **Permits and Codes:** The intent of this section is the specifications if that the contractor's bid on the work covered herein shall be based upon the drawings and specifications but that the work shall comply with all applicable codes and regulations. Contractor shall furnish all necessary bonds to get permits for cuts and connections.
- B. **Existing Improvements:** Maintain in operating condition all active utilities and sewers and other pipe system that may be encountered.
- C. **Trenching:** Lay all pipe in open trenches, except when local authority gives written permission for tunneling. Provide a separate trench for the water line at least 10 feet horizontally from any sanitary sewer. In locations where separate trenches for sewer and water lines are impracticable, lay the water pipe on a solid shaft of at least 18 inches above the top of the sewer.
- D. **Width of Trench:** Excavate trenches minimum of pipe diameter plus 12".
- E. **Shielding and bracing:** Shield and brace trenches as necessary to protect workmen and adjacent structures. All trenching shall comply with the Occupational Safety and Health Administration Standards.
- F. **Water Removal:** Keep trenches free from water while construction therein is in progress. Under no circumstances lay pipe or appurtenances in standing water. Conduct the discharge from trench dewatering to drains or natural drainage channels.
- G. **Grading Trench Bottoms:** The bottom gradient of the pipe shall be fully and uniformly supported. The full load shall rest on the barrel of the pipe. The trench may be excavated to a depth of 4 inches or more below final grade with sand, crushed stone or gravel backfill to bring it back to pipe laying grade. For a depth of at least 12 inches above the top of the pipe backfill with earth or granular material free from large stones, roots or frozen clods. Tamp this backfill thoroughly taking care not to disturb the pipe. Backfill under walk, parking areas, driveways and streets with granular material only and tamp thoroughly, by approved methods. Trenches parallel to and within 10 feet of paved roadways shall be constructed the same.
- H. **Tests:** Before joints are covered, fill the piping with water, opening hydrants or at least two hours at a pressure of 100 pounds per square inch. Inspect all joints for leakage and remedy any leaks. Upon completion of the water distribution mains, flush out the system until the water runs clear. As soon as the system has been flushed out, it shall be sterilized in accordance with the requirements of Hamilton Western Utilities.
- I. If a horizontal distance of 10 feet cannot be maintained between the water line and a sanitary sewer line, one of the following shall be done:
- a. Water line laid in a separate trench and 18" above sewer.
 - b. Water line laid in same trench on a bench of undisturbed earth and sewer at least 18" below bottom of water line.
- Where water lines and sewers cross and the water line cannot be placed above the sewer with a minimum of 18" vertical clearance, the sewer must be constructed of water works grade cast iron pipe with mechanical joints within 10 feet of the water line.
- J. **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 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 engineer of any changes, errors, or omissions found on these plans on in the field before work is started or resumed.
- K. **New Water Main Construction:** Contractor to record dimension of each water stub and valves from nearest fire hydrant measured along water main. The locations of hydrants and water valves, along with any other construction changes are to be incorporated on the original construction drawings and "Record Drawing" prints submitted to Engineer's Office as soon after completion of construction as possible.

Contractor shall submit in his bid the cost of PVC main as well as cast iron.

The following specifications shall apply to the PVC application:
PVC Water Main Pipe

- A. All pipe or fitting joints underground shall be push-on joint or mechanical joint type as noted or equal.
- B. Pipe for water mains laid in the trenches shall be PVC (Polyvinyl Chloride) plastic pressure pipe which meets the requirements of ASTM D-1784 for PVC compounds and ASTM D-3139 for push-on joints. The pipe barrel and bell shall be DR18 (dimension ratio). The pipe shall be rated for 150 psi water working pressure and meet all the requirements of AWWA Standard C-900. Pipe shall be Cowl Corporation of Oak Brook, Illinois Super Main 900 PVC pipe or equal. Transitions from one pipe material to another shall be made using manufacturer's recommended fittings or gaskets.
- C. Each length of pipe shall bear the name or trademark of the manufacturer, the location of the plant, and the date of manufacture. Each length shall likewise be marked to designate the class or strength of the pipe. The marking shall be made on the exterior or interior of the pipe barrel near the bell or groove end and shall be plainly visible.

Fittings and Specs

- A. All pipe fittings and specials for trench-lay main using PVC pipe shall be push-on joint ductile cast iron with a pressure rating of 350 psi and conform to ANSI/AWWA-C110/A21.10 and ANSI/AWWA-C111/A21.11 Standards. Fittings shall be Cowl Corporation of Oak Brook, Illinois Super Bell-Tite fittings or equal.

Fitting and Valve Encasement

- A. All iron fittings and valves shall be encased with a polyethylene encasement of a minimum eight (8) mil thickness and conform to ANSI/AWWA-C105/A21.5. Polyethylene encasement shall be Cowl Corporation of Oak Brook, Illinois or equal.

Pipe Tracing Tape

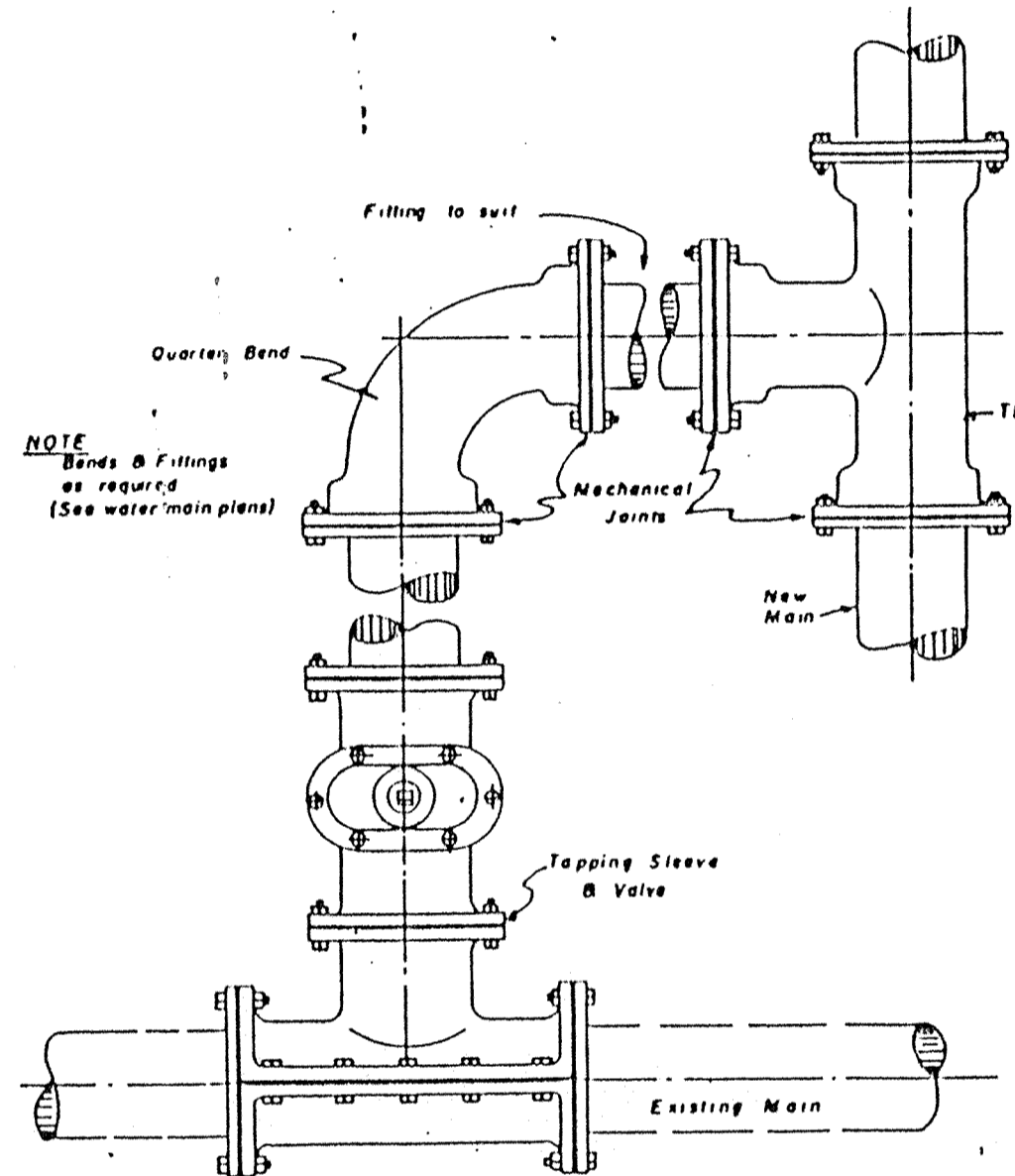
- A. All pipe shall be traced with "Terra Tape" by Reef Industries, Inc., P.O. Box 33248, Houston, Texas 77033 or equal. Tape shall be "Detectable" type imprinted with "Caution Buried Water Line Below".

Gate Valves

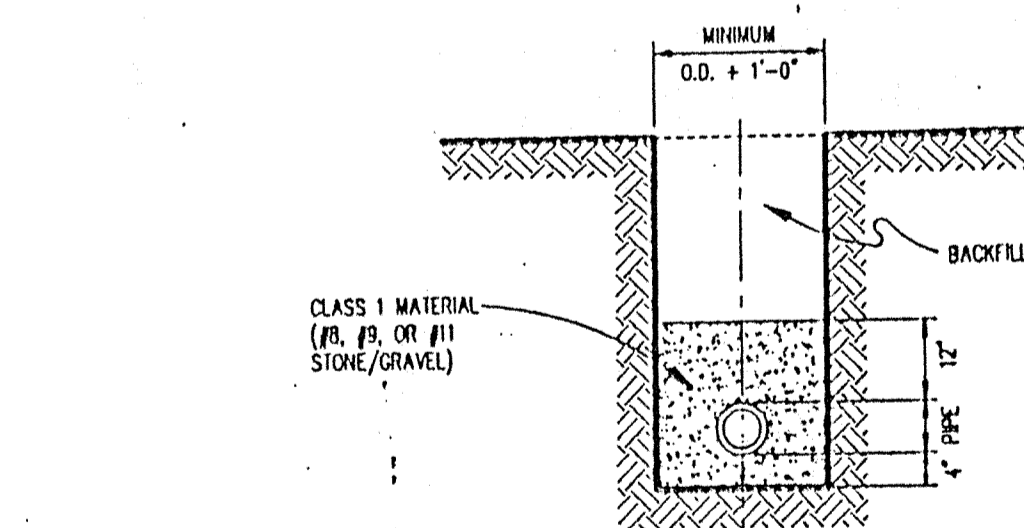
- A. All gate valves shall be iron body, bronze mounted, double disc, parallel seat type gate valves, conforming to AWWA Standard Specifications C500. They shall open in a counter clockwise direction. Valves placed in a valve box shall terminate in 2 inch square operating nut and have non-rising stems. One valve wrench shall be supplied to the Owner for this project. Gate valves shall be as made by Kennedy Valve Manufacturing Co., Inc., Elmira, New York, Mueller or equal.

Valve Boxes

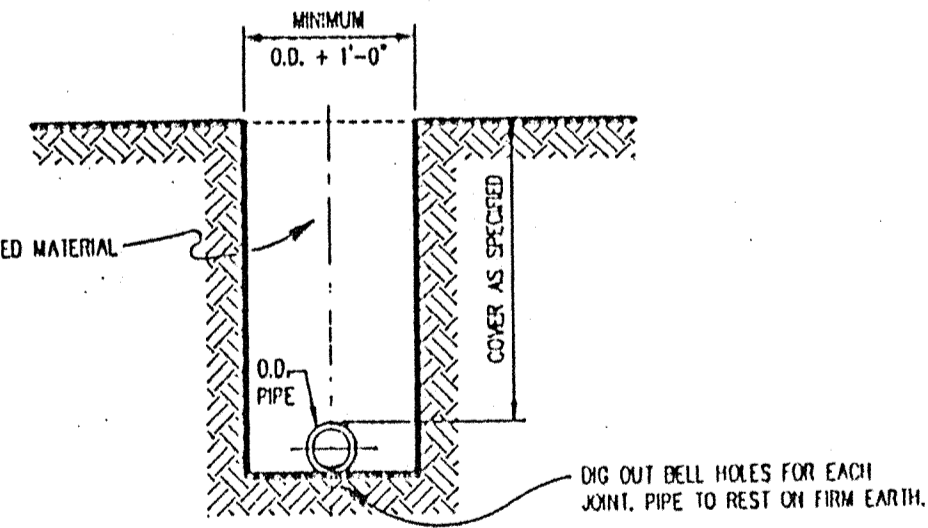
- A. Valve boxes shall be a three-piece cast iron type (base, center section, and sliding type adjustable extension) together with a "stay-pull" cover marked "WATER". The base shall be of the size recommended by the manufacturer for the size valve with which it is to be used. Wall thickness of the base and vertical sections shall not be less than 3/16 inch, and each valve box shall have a minimum shaft diameter of 5-1/4 inches.



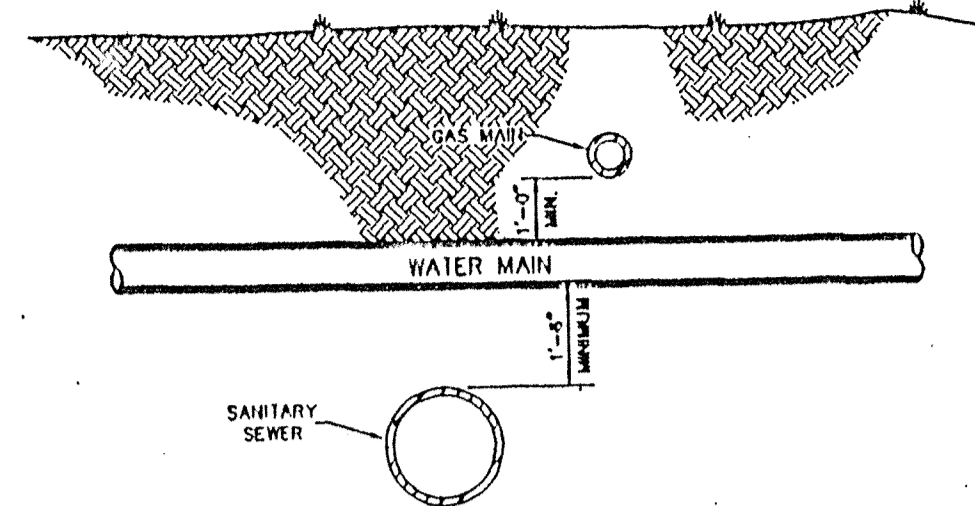
TYPICAL CONNECTION TYPE "B"



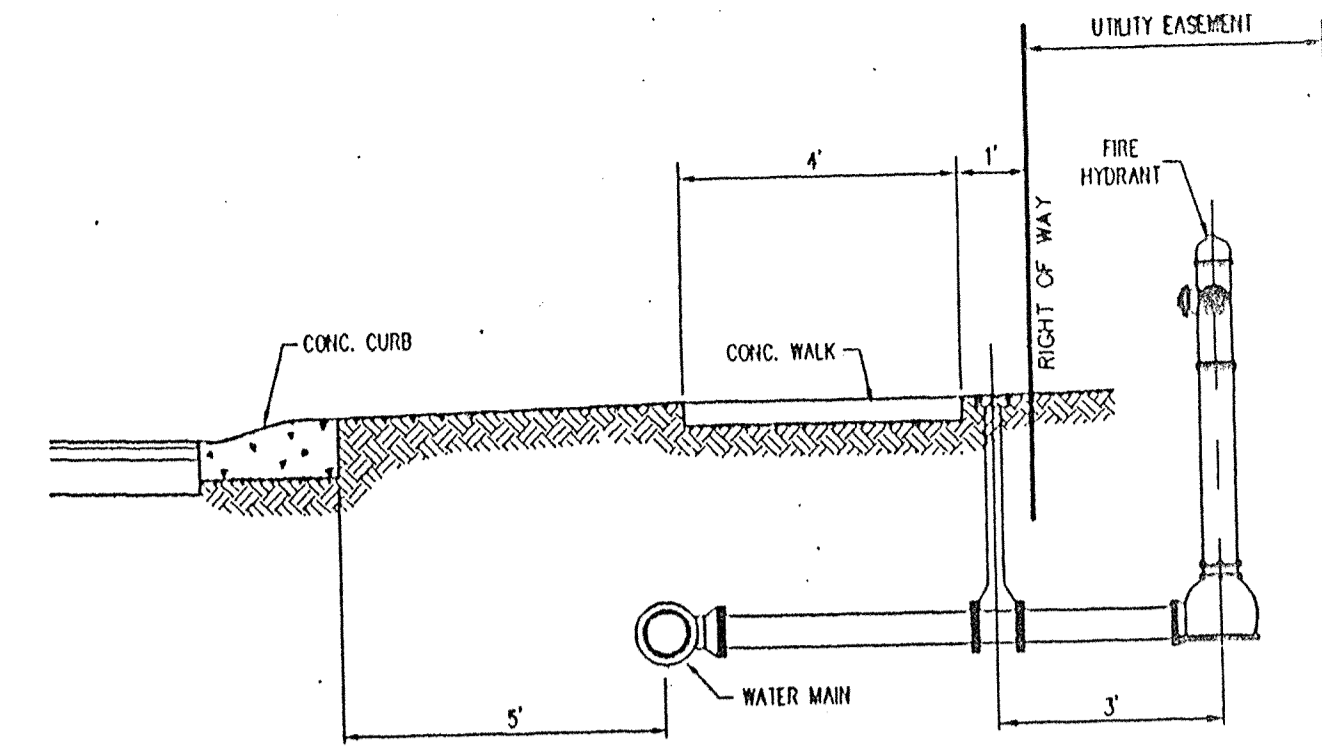
TYPICAL WATER MAIN INSTALLATION (FOR PVC PIPE)



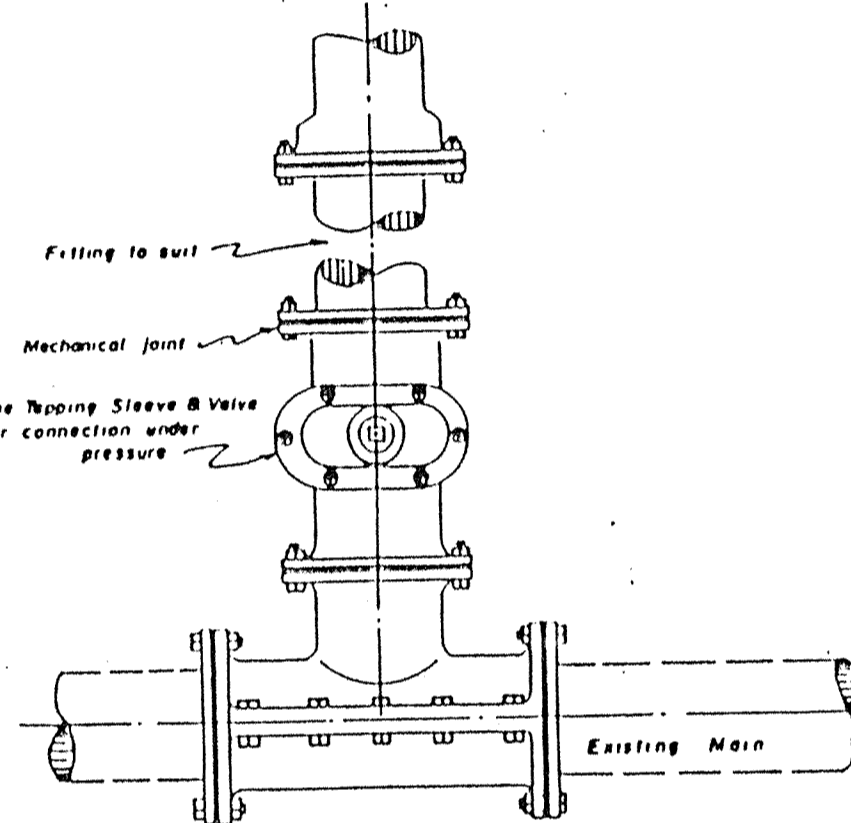
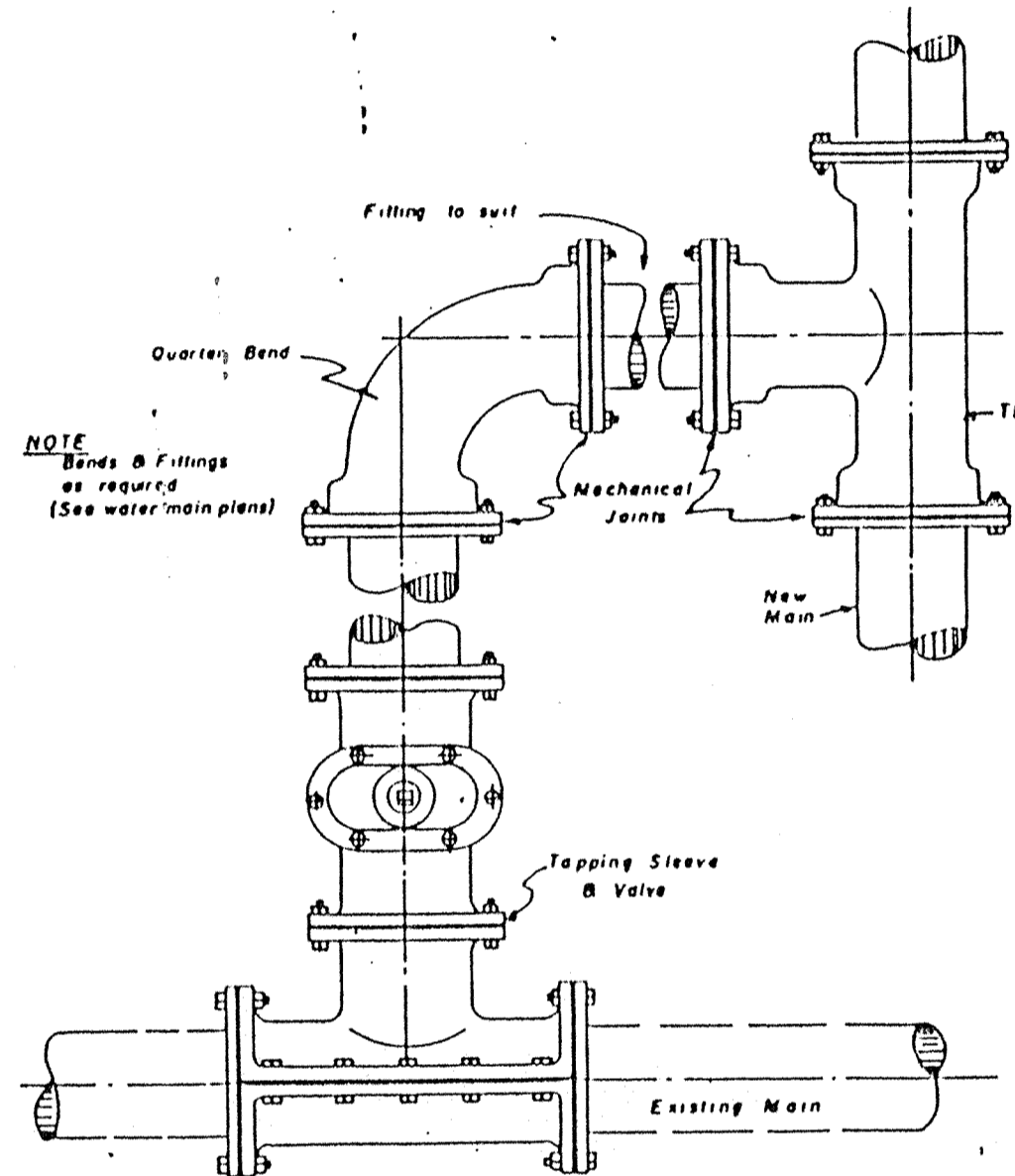
TYPICAL WATER MAIN INSTALLATION (FOR DUCTILE IRON PIPE)



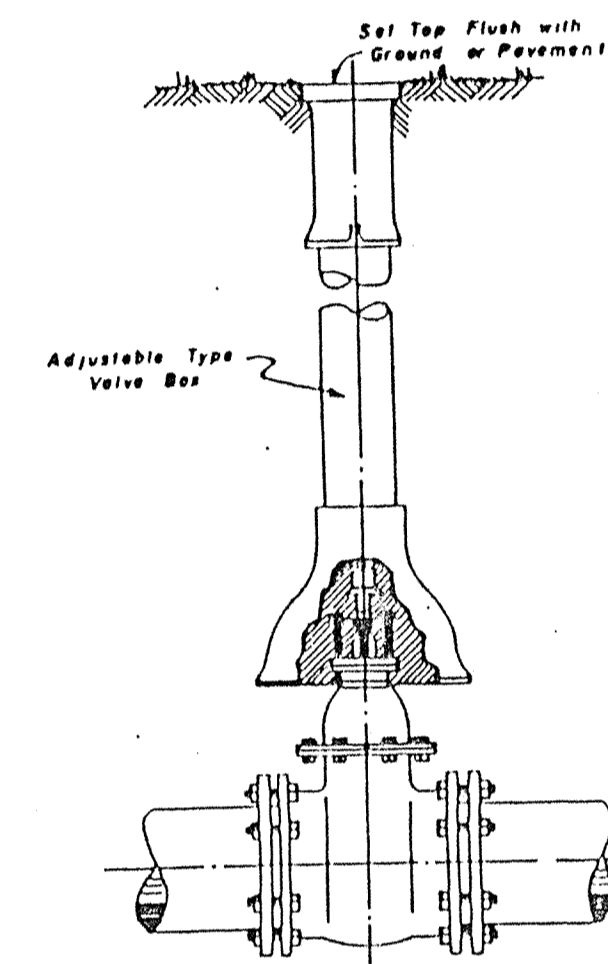
TYPICAL UTILITY CROSSING



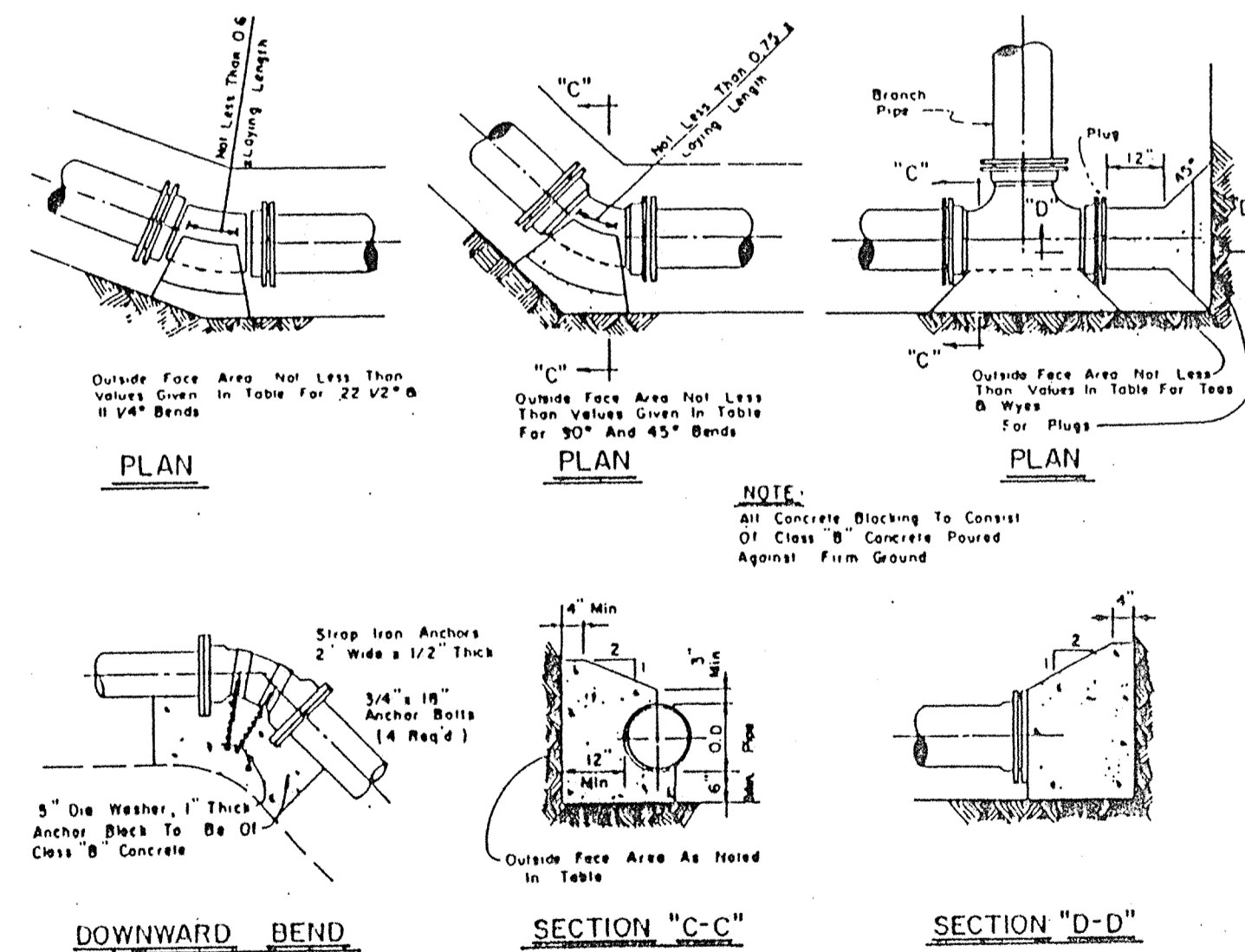
TYPICAL SECTION - HYDRANT & MAIN LOCATION



TYPICAL CONNECTION TYPE "A"



TYPICAL GATE VALVE & VALVE BOX



DETAIL - CONCRETE BLOCKING

BLOCKING FOR PLUGS & BENDS					BLOCKING FOR TEES & WYES				
PIPE SIZE	PLUG	90° BEND	45° BEND	22 1/2°	11 1/4°	PIPE SIZE	SIZE OF BRANCH	SIZE OF MAIN	SIZE OF OUTSIDE FACE
20"	16	25	14	7	4	20"	12"	12"	12"
16"	12	16	9	3	3	OR	10"	10"	10"
12"	7	9	5	3	2	OR	8"	8"	8"
10"	4	5	3	2	1	OR	6"	6"	6"
8"	3	3	2	1	1	OR	4"	4"	4"
4"	2	3	2	1	1	LESS	4"	4"	4"

DETAIL - CONCRETE BLOCKING

REVISIONS:

KEITH LASH
REGISTERED
No. 9800085
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 8/15/01

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MERRIMAC
SECTION 6
WESTFIELD, INDIANA
MERRIMAC CORP.
CARMEL, INDIANA

FILED
SEP 12 2001
OFFICE OF HAMILTON COUNTY ENGINEER

DATE: 8/15/01 PROJECT NO: 1045.004
DRAWN BY: MG CHECKED BY:
SHEET TITLE: WATER DETAILS & SPECIFICATIONS
DRAWING FILES: N:\1045\004\DWG\C805.DWG
SHEET NO: C805

EARTHWORK

1. SCOPE OF WORK

A. 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.

- 1. 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.
2. Excavated material that is suitable may be used for fills. All unsuitable material and all surplus excavated material not required shall be removed from the site.
3. Provide and place any additional fill material from off the site as may be necessary to produce the grades required.
4. 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.

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

- 1. Excavation, grading and backfilling for utility lines
2. Storm drainage systems
3. Sanitary sewer systems
4. Streets and paving
5. Water supply system

2. BENCH MARKS

Maintain carefully all bench marks, monuments and other reference points; if disturbed or destroyed, contractor shall contact engineer.

3. REMOVAL OF TREES

- A. Remove all trees and stumps from area to be occupied by road and surfaced areas.
B. All brush, stumps, wood and other refuse from the trees shall be buried onsite or removed to disposal areas off of the site.

4. PROTECTION OF TREES

A. General Protection: The Contractor shall be responsible for the protection of trees, trunks and roots of existing trees on the project site that are to remain.

5. HANDLING OF TOPSOIL

- A. Remove all organic material from the areas to be occupied by buildings, roads, walks and parking areas.
B. After completion of site grading and subsurface utility installation, top soil shall be replaced in areas designated on the erosion control plan for seeding and/or sodding.

6. DISPOSITION OF UTILITIES

- A. Rules and regulations governing the respective utilities shall be observed in executing all work under this section.
B. If active utilities are encountered but not shown on the drawings, the Engineer shall be advised before work is continued.
C. Inactive and abandoned utilities encountered in excavating and grading operations shall be reported to the Engineer.

7. SITE GRADING

- A. Grades: Contractor shall perform all cutting, filling, compacting of fills and rough grading required to bring entire project area to grades as shown on the drawings.
B. Rough Grading: The tolerance for paved areas shall not exceed 0.10 feet plus or minus above the established subgrade.
C. Compaction Requirements:
1. All building pad areas shall be compacted to standards specified by local and/or state building codes.
2. For compaction requirements of paved areas, see street specifications.

8. Earth Work Balance

The Contractor shall confirm all earthwork quantities prior to start of construction. If an excess or shortage of earth is encountered, the Contractor shall confirm with the Owner and Engineer the requirements for stockpiling, removal or importing of earth.

Minor adjustments to the grades may be required to earthwork balances when minor excess material or shortages are encountered. It is recognized by the parties hereto that the calculations of the Engineer in determining earthwork quantities shall be accomplished in accordance with the American Society of Civil Engineers Standards for such calculations.

SANITARY SEWER SYSTEMS

1. SCOPE OF WORK

The work under this section includes all sanitary sewers, manholes, cleanouts and related items including excavating and backfilling, necessary to complete the work shown in the drawings, starting five feet outside the building walls and extending to sewer stubs, tightly plugged or capped at the terminal points, adjacent to buildings, pending the connecting of all such lines to the building sewer.

2. MATERIALS

A. Sanitary Sewers

- 1. All gravity plastic sewer pipe and fittings shall conform to ASTM D3034, SDR-35 and meet a cell classification of 12454 B in accordance with ASTM 1784.

B. Manholes

- 1. Precast reinforced concrete manhole sections and steps shall conform to ASTM C-478 latest revision.
2. Castings shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage distortion or other defects.
3. Joints - manhole sections shall be jointed with sealed "o" rings.
4. Bismatic coating shall be applied around each manhole joint from 6 inches above to 6 inches below each joint.

3. APPLICATION

- A. Permits and Codes - The intent of this section of the specifications is that the contractor's bid on the work covered herein shall be based upon the drawings and specifications but that the work shall comply with all applicable codes and regulations as amended by any waivers.
B. Local Standards - The term "local standards" as used herein means the standards of design and construction of the respective municipal department of utility company.
C. Existing Improvements - Maintain in operating condition all active utilities, sewers and other drains encountered in the sewer installation.

4. BACKFILLING

Backfilling - for a depth of at least 12 inches above the top of the pipe, backfill with granular material free from large stones, rock fragments, roots or sod.

5. FLOW CHANNELS

The flow channels within manholes shall be an integral part of the precast base. The channels shall be shaped and formed for a clean transition with proper hydraulics to allow the smooth conveyance of flow through the manhole.

6. INFILTRATION

The contractor shall furnish necessary equipment to test sewers for infiltration. Infiltration rates shall not exceed the Local Standards. All sanitary sewer work upon completion will be required to pass a low pressure air test, unless otherwise directed by the City of Carmel.

J. Flushing Sewers - Flush all sanitary sewers except building sewers with water to obtain free flow through each line. Remove all silt and trash from appurtenances just prior to acceptance of work.

K. Plastic Sewer Pipe Installation - Plastic sewer pipe shall be installed in accordance with ASTM D2321 per latest revision and no plastic pipe shall exceed a deflection of 5%.

L. Storm Water Connections - No roof drains, footing drains and/or surface water drains may be connected to the sanitary sewer systems, including temporary connections during construction.

M. Waterline Crossing - Where water lines and sanitary sewers cross one another water lines cannot be placed above the sewer with a minimum of 18 inches vertical clearance.

N. 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 contractor's responsibility to contact the owners of the various utilities before work is started.

O. Service Laterals - Individual lot service lines shall be 6" in diameter and of material equal to that specified in 2A of this section.

P. New Sanitary Sewer Main Construction - Contractor shall record dimensions of each service line stub from nearest downstream manhole measured along the sanitary sewer main.

Q. Sanitary sewer manholes shall be tested in accordance with ASTM C 1244-93, "Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test."

STORM SEWER SYSTEMS

1. SCOPE OF WORK

The work under this section includes all storm sewers, storm water inlets, and related items, including excavating and backfilling, necessary to complete the work shown on the drawings.

2. MATERIALS

A. Storm Sewers

1. Reinforced concrete sewer pipe shall conform to ASTM C-76 (latest revision), with joints conforming to ASTM C-443 latest revision.

B. Manholes

- 1. Precast reinforced concrete manhole sections and steps shall conform to ASTM C-478 latest revision.
2. Casting shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage distortion or other defects.
3. Joints - Manhole sections shall be jointed with rubber type gaskets.

C. SUBDRAINS

1. Perforated plastic pipe subdrains shall conform to ASTM F-405.

3. APPLICATION

- A. Permits and Codes - The intent of this section of the specifications is that the contractor's bid on the work covered herein shall be based upon the drawings and specifications but that the work shall comply with all applicable codes and regulations as amended by any waivers.
B. Local Standards - The term "Local Standards" as used herein means the standards of design and construction of the respective municipal department or utility company.
C. Existing Improvements - Maintain in operating condition all active utilities, sewers and other drains encountered in the sewer installation.
D. Workmanship - To conform to all local, state and national codes and to be approved by all local and state agencies having jurisdiction.
E. Trenching - Lay all pipe in open trenches, except when the local authority gives written permission for tunneling.

G. Backfilling - for a depth of at least 12 inches above the top of the pipe, backfill with earth or granular material free from large stones, rock fragments, roots or sod.

H. Manhole Inverts - Construct manhole flow channels of concrete sewer pipe or brick, smoothly finished and of semi-circular section conforming to the inside diameter of the connecting sewers.

I. Subdrains - All subdrains shall be of the size shown on the plans and shall be constructed to the grades shown.

J. Utilities - It shall be the responsibility of each contractor to verify all existing utilities and conditions pertaining to his phase of the work.

K. Contractor to grout joints inside storm structures where pipes enter or exit manholes and between structure and casting.

STREETS

1. SCOPE OF WORK

The work required under this section includes all 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 streets, parking areas in contract limits Curbs and gutters Sidewalks and concrete slabs, exterior steps

2. MATERIALS

A. Concrete - Concrete shall be ready-mixed concrete and shall be a mix of proportioned fine and coarse aggregates with Portland cement and water. Minimum cement content shall be 5 bags per cubic yard of concrete and maximum water content shall be 5.5 U.S. gallons per sack of cement.

1. Portland cement - Conforming to ASTM C-150, Type IA or Type IIIA.

2. Aggregates: Conforming to ASTM C-33

3. Water - Shall be clear and free from injurious amounts of oil, acids, alkalies, organic materials or other deleterious substances.

B. Welded Steel Wire Fabric - Where required for concrete reinforcement shall conform to ASTM A185.

C. Premoulded Joint Filler - Shall be of non-extruding type meeting ASTM D-544 except that premoulded joint filler used in concrete walk construction may be either non-extruding or resilient.

D. Bituminous Pavement Materials - All materials proposed for the construction of bituminous pavements shall comply with the Indiana Department of Transportation specifications, per latest revision.

E. Compacted Aggregate Subbase: Shall be crushed stone or gravel. Crushed gravel shall be a minimum of 35% crushed material.

Table with 2 columns: SIEVE SIZE, % PASSING. Rows include 1-1/2", 1", 3/4", 1/2", #4, #8, #30, #200.

3. APPLICATION

- A. Grading - Do any necessary grading in addition to that performed in accordance with Earthwork Section, to bring subgrades, after final compaction, to the required grades and sections for site improvement.
B. Preparation of Subgrade - Remove spongy and otherwise unsuitable material and replace with stable material.
C. Compaction of Subgrade - The first 6 inches below the subgrade shall be compacted to at least 100% of the maximum dry density as determined by the provisions of AASHTO T-99.

4. PLACING CONCRETE

- 1. Subgrade - Place concrete only on a moist, compacted subgrade or base free from loose material.
2. 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.

3. Placing Concrete - Concrete shall be deposited so as to require as little rehandling as practicable.

F. Concrete Curb

- 1. Expansion Joints - Shall be 1/2 inch thick premoled between storm structures & curb.
2. Contraction/Control Joints - Unless otherwise provided, contraction joints shall be sawed or scored joints spaced 10 feet on center, except for intersection radii where joints shall be placed 5' o.c.
3. Finish - Tamp and screed concrete as soon as placed, and fill any honey combed places.

G. Concrete Walks and Exterior Steps

- 1. Slopes - Provide 1/4 inch per foot cross slope. Make adjustments in slopes at walk intersections as necessary to provide proper drainage.
2. Dimensions - Walks and steps shall be one course construction and of widths and details shown on the drawings.
3. Finish - Screed concrete and trowel with a steel trowel to a hard dense surface after surface water has disappeared.

H. Curing Concrete

Except as otherwise specified, cure all concrete by one of the methods described in Section 501.17 of the Indiana Department of Transportation Specifications, latest revision.

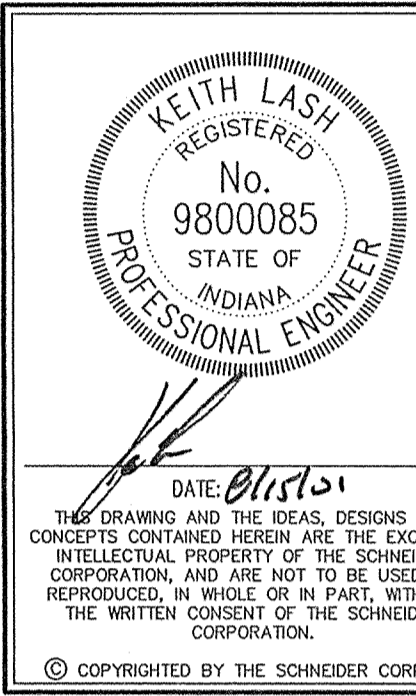
I. Bituminous Pavement

Hot asphalt concrete pavement shall be as specified in Section 403 of the Indiana Department of Transportation Specifications latest revisions.

J. Compacted Aggregate Subbase

- 1. The thickness shown on the drawings is the minimum thickness of the fully compacted subbase.
2. Compact, following Section 304.05 of the 1995 INDOT Standard Specifications.

REVISIONS:



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MERRIMAC SECTION 6 WESTFIELD, INDIANA MERRIMAC CORP. CARMEL, INDIANA

FILED SEP 12 2001 OFFICE OF HAMILTON COUNTY SUPERVISOR

DATE: 8/15/01 PROJECT NO.: 1045.004 DRAWN BY: MG CHECKED BY:

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