Drain: <u>BRIOGEWATER ORAIN</u>	Drain #: 2 <i>45</i>
lmprovement/Arm: <u> <i>દ્રદાઇદે ખતાદર – St</i></u>	
Operator: ೨ <i>р</i> ਮ	Date:
Drain Classification: Urban/Rura	Year Installed: 1992

GIS Drain Input Checklist

•	Digitize & Attribute Tile Drains	N/a
•	Digitize & Attribute Storm Drains	god 11-3
•	Digitize & Attribute SSD	GR 11-3
•	Digitize & Attribute Open Ditch	9.4.11-3
•	Sum drain lengths & Validate	92411-3
•	Enter Improvements into Posse	92411-3
•	Enter Drain Age into Posse	July 11-6
•	Sum drain length for Watershed in Posse	Just 11-le
•	Stamp Plans	Ja 11-3
•	Pull Source Documents for Scanning	92 11.3

acid summary ok V slm 11-24-2003

Gasb 34 Footages for Historical Cost Drain Length Log

Drain-Improvement: BLIGGEWATER ORAIN - SECTION 2

Drain Type:	Size:	Sugrafies (As Builds	Length (DB Query)	Length Reconcile	Price:	Cost:
550	6"	1980'	1,980'	ø		
RCP	124	241'	241'	Ø		
	75"	2591	2591	8		
	18"	305'	3051	ø		
OPEN OITCH		1201	1201	ø		
	Sum:	2,905'	2905'	<u>ø</u>		
inal Report:						
Comments:						
			· · · · · · · · · · · · · · · · · · ·			





Kenton C. Ward, Surveyor

942 Maple Avenue

776=0626 776-8495

Noblesville, Indiana 46060 September 24, 1992

TO: Hamilton County Drainage Board

RE: Bridgewater Drain, Section 2 Arm

Attached is a petition, non-enforcement request, plans, calculations, quantity summary and assessment roll for the Bridgewater Drain, Section 2 Arm. 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 costs, 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:

Open Ditch	120ft	18" RCP	300ft
6" SSD	1980ft		
12" RCP	238ft		
15" RCP	253ft		

The total length of the drain will be 2391 feet.

The subsurface drains (SSD) to be part of the regulated drain are those located under the curbs and those main lines between lots or in rear yards. Only the main SSD lines which are located within the easement or 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 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 assessment for the drain this section will be \$750.00.

I recommend a hearing be set for November 1992. If hearing is approved, I recommend the Board approve the attached non-enforcement request for this section of Bridgewater. I also recommend to the Board that this drain be classified as an Urban Drain.

Kenton C. Ward

Hamilton County Surveyor

KCW/sh

STATE OF INDIANA)
COUNTY OF HAMILTON)

TO: HAMILTON COUNTY DRAINAGE BOARD
% Hamilton County Surveyor, Courthouse, Noblesville, IN 46060

In	the matter	of	BRIDGEWATER	Subdivision,
Section_	TWO.		Drain Petition.	

Petitioner is the owner of all lots in the land affected by the proposed new regulated drain. The drainage will affect various lots in **BRIDGEWATER**SEC. TWO, a subdivision in Hamilton County, Indiana. The general route of such drainage shall be in existing easements and along public roads as shown in the plans on file in the Surveyor's Office.

Petitioner believes that the cost, damages and expenses of the proposed improvement will be less than the benefits which will result to the owners of the land likely to be benefited thereby. Petetioner believes the proposed improvements will:

- (a) improve public health
- (b) benefit a public street
- (c) be of public utility

Petitioner agrees to pay the cost of construction of the drainage system and requests periodic maintenance assessments by the Board thereafter.

The Petitioner also agrees to the following:

- 1. To provide the Drainage Board a Performance Bond for the portion of the drainage system which will be made a regulated drain. The bond will be in the amount of 100% of the Engineers estimate. The bond will be in effect until construction of 100% of the system is completed and so certified by the Engineer.
- 2. The Petitioner shall retain an Engineer throughout the construction phase. At completion of the project the Petitioner's Engineer shall certify that the drainage system which is to be maintained as a regulated drain has been constructed as per construction plans.

- 3. The Petitioner agrees to request in writing to the County Surveyor any changes from the approved plan and must receive written authorization from the County Surveyor prior to implementation of the change. All changes shall be documented and given to the Surveyor to be placed in the Drain File.
- 4. The Petitioner shall instruct his Engineer to provide a reproducable print on a 24" x 36" mylar of the final design of the Drainage System. This shall be submitted to the County Surveyor prior to the release of the Performance Bond.
- 5. The Petitioner shall comply with the Erosion Control Plan as as specified on the construction plans. Failure to comply with the Erosion Control Plan shall be determined by the Board as being an obstruction to the drainage system. The County Surveyor shall immediately install or repair the needed measures at Petitioners cost as per IC 36-9-27-46.

The Petitioner further requests that the Drain be classified as an Urban Drain.

× ale E	Porenby	
Signed		
ALLEN	ROSENBERG	
Printed Name		
Signed		
Printed Name		
RECORDED OW	WNER(S) OF LAND INVOLVE	ED ,
DATE		

INB National Bank One Indiana Square Indianapolis, Indiana 46266



	Date: July 28, 19921c
SWIFT Address: INBI US 44 Telex Number 205615 Phone: 266-6153	SB 035867 Credit Number Advising Bank No.
Advising Bank	Applicant The Marina Limited Partnership 20999 Hague Road Noblesville, IN 46060
Hamilton County Commissioners & Hamilton County Drainage Board	USD 29,420.00
Court House Noblesville, IN 46060	Expiration Date
1005.05VIIIC/ IIV 40000	August 3, 1994
We hereby issue in your favor this irrevocable letter of credit which is available	· · · · · · · · · · · · · · · · · · ·
Drafts drawn at— sight	against the following documents.
Oracs drawn at—	
on <u>INB National Bank, Indianapolis, Indiana</u>	
on O) F O C 7
bearing the clause; "Drawn under irrevocable letter of credit No. SB 03 Other documents:	35867 - Anno 1975
Certification by the Hamilton County Commiss: of Noblesville, Indiana, for non-compliance sewers in Bridgewater Subdivision, Section 2, certification may not antedate the Letter of	with the specifications required for storm, by The Marina Limited Partnership, such
Certification by the Hamilton County Commission of Noblesville, Indiana, that funds drawn undering the storm sewers into compliance in account of the storm sewers in	der this Letter of Credit will be used to
RELEASE OF LETTER OF CREDIT HAMILTON COUNTY/BOARD OF COMMISS: Special Gonditions:	nn-
BY: After C. D. D. DAKEN BY: DAKEN C. D.	BOARD OF COMMISSIONERS OF THE COUNTY OF HAMILTON
ATTEST: Baredown January HAMILTON COUNTY AUDITOR	DATE AUB. 3, 1992
E COUNTY AUDITOR - ac	terij
We hereby engage with 2 You drawers and/or bona fide holders that drafts drawn and negotiated in conformity with the terms of this credit will be duly honored on presentation and that drafts accepted within the terms of this credit will be duly honored at maturity.	Advising Bank's Notification
The amount of each draft must be endorsed on the reverse of this credit by the	
The Advising Bank is requested to notify the beneficiary without adding their confirmation. Very truly yours, This copylprinted from the Digital Archive of the Hamilton County Survey	vor's Office. One Hamilton Co. Square, Ste. 188, Noblesville, In 46060 Place date/name/signature of advising bank.
7 220-6320 Revised 4/89	raceroate/name/signature or advising bank.

CERTIFICATE OF COMPLETION AND COMPLIANCE

TO: COUNTY SURVEYOR ATTN: Mr. Kent	'S OFFICE, HAMILTON COUNTY
FROM: Paul I. Cripe,	
SUBJECT: Bridgewater Subs	division, Section Two
I hereby certify that	
 I am familiar with above referenced pr 	the plans and specifications for the oject,
 I have personally o referenced project, 	bserved the completion of the above and
the above reference	nowledge, information and belief, d project has been performed and mity with all plans and specifications, Record Drawings"
Signature Angle	O. Shop Date December 13, 1993
Type or Printed Name	Joseph A. Sharp
Business Address	7172 Graham Road
	Indianapolis, IN 46250
Telephone <u>(317)</u> 842-6777	
Seal	Indiana Registration Number
Will A House	15179
No.	**************************************

ADM:t1 1/13/84





Kenton C. Ward, Surveyor

Phone (317) 776-8495

Fax (317) 776-9628

Suite 146 One Hamilton County Square Noblesville, Indiana 46060-2230

July 23, 1996

TO: Hamilton County Drainage Board

RE: Bridgewater Drain-Section 2

Attached are As-Builts, Certificate of Completion and Compliance, and other information for Bridgewater Drain-Section 2. 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 September 24, 1992. The changes are as follows:

STR	710	to	709	12"	RCP	lengthened	from	48'	to	52	feet
STR	709	to	708	12"	RCP	shortened	from	190'	to	189	feet
STR	707	to	706	15"	RCP	lengthened	from	25'	to	30	feet
STR	705	to	704	15"	RCP	lengthened	from	200'	to	201	feet
STR	704	to	703	18"	RCP	lengthened	from	70'	to	71	feet
STR	703	to	702	18"	RCP	lengthened	from	80'	to	83	feet
STR	702	to	701	18"	RCP	lengthened	from	150'	to	151	feet

The length of the drain due to the changes described above is now 2,905 feet.

The non-enforcement was approved by the Board at its meeting on November 16, 1992.

The Bond or Letter of Credit from INB National Bank, number 035867, dated July 28, 1992, in the of amount of \$29,420.00, has expired.

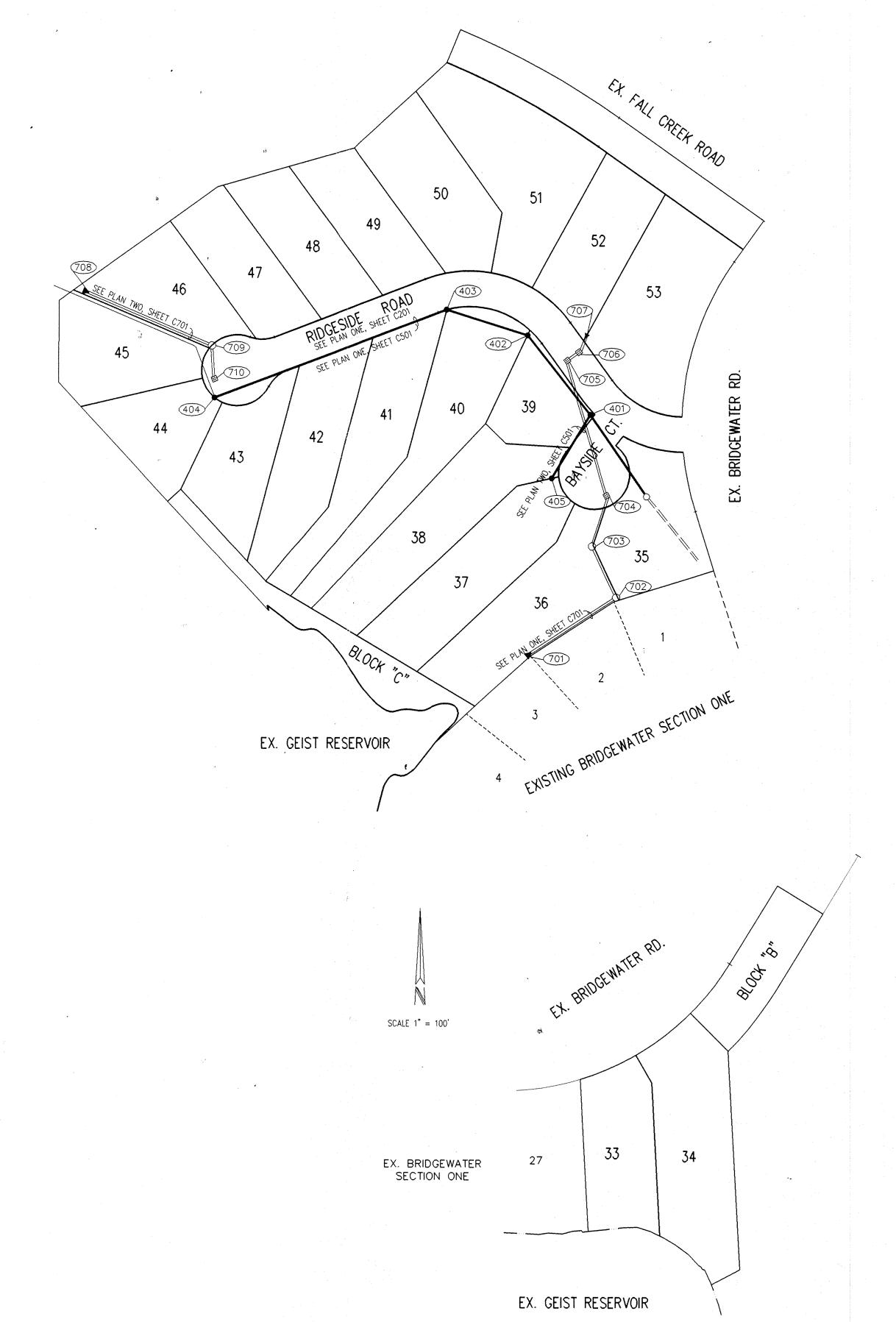
I recommend the Board approve the drains construction as complete and agreeptable.

Kenton C. Ward

Hamilton County Surveyor

KCW/no

CONSTRUCTION PLANS FOR BRIDGEWATER SECTION TWO



REVISIONS

CERTIFIED BY:

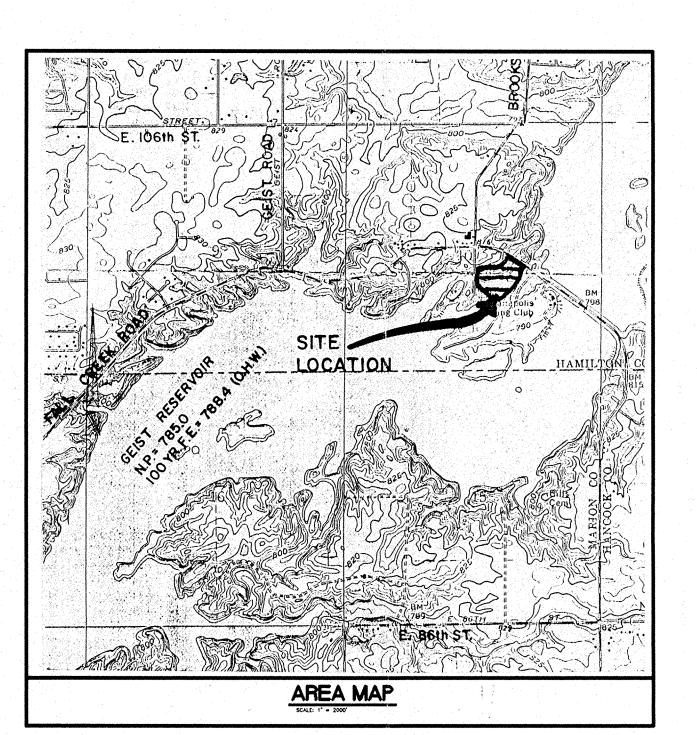
07/08/92 DATE

DEVELOPED BY:

MARINA LTD. PARTNERSHIP 20999 HAGUE ROAD NOBLESVILLE, IN 46060

DESIGN DATA

STREET NAME	LENGTH
RIDGESIDE ROAD	750' ±
BAYSIDE COURT	105' ±
DENSITY = 1.57± LOTS	PER ACRE



SITE WORK GENERAL NOTES AND SPECIFICATIONS

NOTICES AND PERMITS

A. LOCATION & ELEVATIONS OF "FLOODWAY LIMITS" AND "100 YEAR FLOOD LIMITS" ARE SHOWN FRO REFERENCE ONLY. DEVELOPER/BUILDER/INDIVIDUAL LOT OWNER TO REFER TO NATIONAL FLOOD HAZARD INSURANCE MAP (F.E.M.A.) TO DETERMINE FLOOD HAZARD POTENTIAL PRIOR TO INDIVIDUAL LOT/PROJECT CONSTRUCTION.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, OR VERIFYING, THAT ALL PERMITS AND APPROVALS ARE OBTAINED FROM THE RESPECTIVE CITY, COUNTY AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION.

C. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES IN THE VICINITY OF THE CONSTRUCTION AREA PRIOR TO STARTING CONSTRUCTION.

D. IT SHALL BE THE CONTRACTORS RESPONSIBILITY FOR NOTIFICATION AND COORDINATION OF ALL CONSTRUCTION WITH RESPECTIVE UTILITY COMPANIES.

E. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND CONTRACTOR TO MAINTAIN QUALITY CONTROL THROUGHOUT THE PROJECT; FAILURE TO DO SO MAY RESULT IN REMOVAL AND REPLACEMENT OF THE DEFECTIVE WORK. IT IS RECOMMENDED THAT THE DEVELOPER HAVE A QUALIFIED INSPECTOR ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.

F. IT IS ESSENTIAL THAT THE WORK TO BE DONE IN CONJUNCTION WITH THIS PROJECT SHALL BE INSTALLED ACCORDING TO THESE SPECIFICATIONS. THE ENGINEER WILL BE REQUIRED TO CERTIFY TO CERTAIN PORTIONS OF THIS AND ACCEPTANCE BY THE CITY THAT CONSTRUCTION WAS DONE IN COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS.

G. ALL QUANTITIES GIVEN ON THE PRINTS, VERBALLY OR IN THE SCOPE OF WORK SECTION ARE ESTIMATES AND SHALL BE CONFIRMED BY THE BIDDING CONTRACTOR.

H. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS FOR EXCAVATIONS; FINAL RULE 29 CFR PART 1926, SUBPART "P" APPLIES TO ALL EXCAVATIONS EXCEEDING FIVE (5) FEET IN DEPTH.

I. IN ADDITION, EXCAVATIONS EXCEEDING TWENTY (20) FEET IN DEPTH REQUIRE THE DESIGN OF A TRENCH SAFETY SYSTEM BY A REGISTERED PROFESSIONAL ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH THE

INDEX

	·		
	SHT	DESCRIPTION	
	CS C201 C202 C301 C401 C402 C501 C701 C801	COVER SHEET SITE DEVELOPMENT PLAN EROSION CONTROL PLAN STREET PLAN & PROFILE STREET DETAILS STREET DETAIL SANITARY SEWER PLAN & PROFILE STORM SEWER PLAN & PROFILE STANDARD DETAILS STANDARD DETAILS STANDARD SPECIFCATIONS STANDARD SPECIFCATIONS	
1			

BENCHMARKS

TBM - CUT "" AT LIFT STATION SOUTH SIDE OF FALL CREEK RD. AT RICK'S DOCKSIDE ELEV. = 792.66

REVISIONS

07/27/92 REVISED PER COUNTY COMMENTS 8/5/92 REVISED ENTRANCE ALIGNMENT PER COUNTY COMMENTS 11/05/92 ADDED SANITARY SEWER AS-BUILTS SHEET C501
3/8/93 ADDED STORM SEWER AS -BUILTS SHEET C701
8/30/93 ADDED LATERAL AS - BUILTS

DWG. TYPE FILE NUMBER SHEET:

PAUL I. CRIPE, INC. 7172 GRAHAM ROAD

INDIANAPOLIS, INDIANA 46250

 CIVIL ENGINEERING LAND SURVEYING ARCHITECTURE

• LAND PLANNING

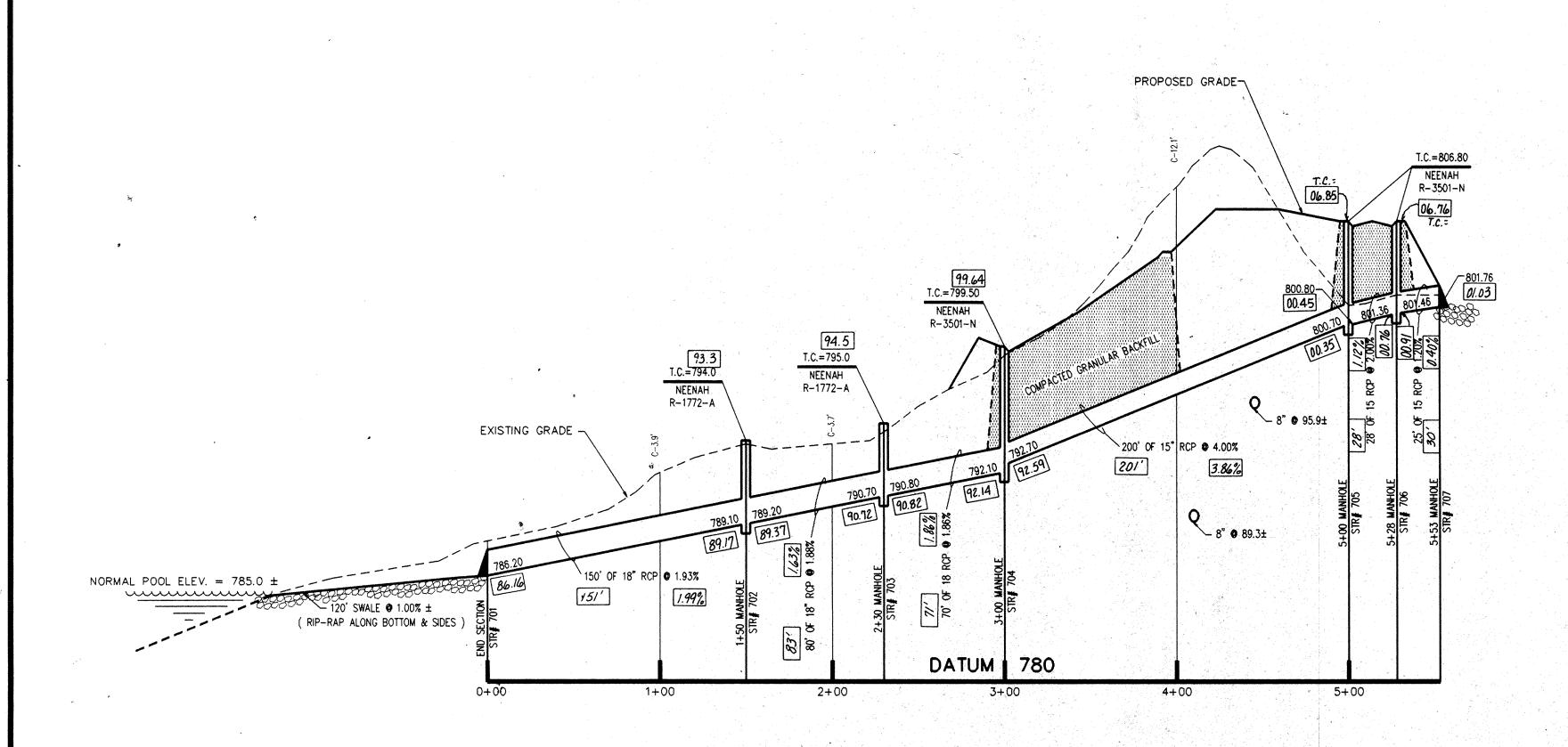
DRAWN BY: ENG. CHK: DRFTNG. CHK:

AS NOTED DRAWING TITLE: 755

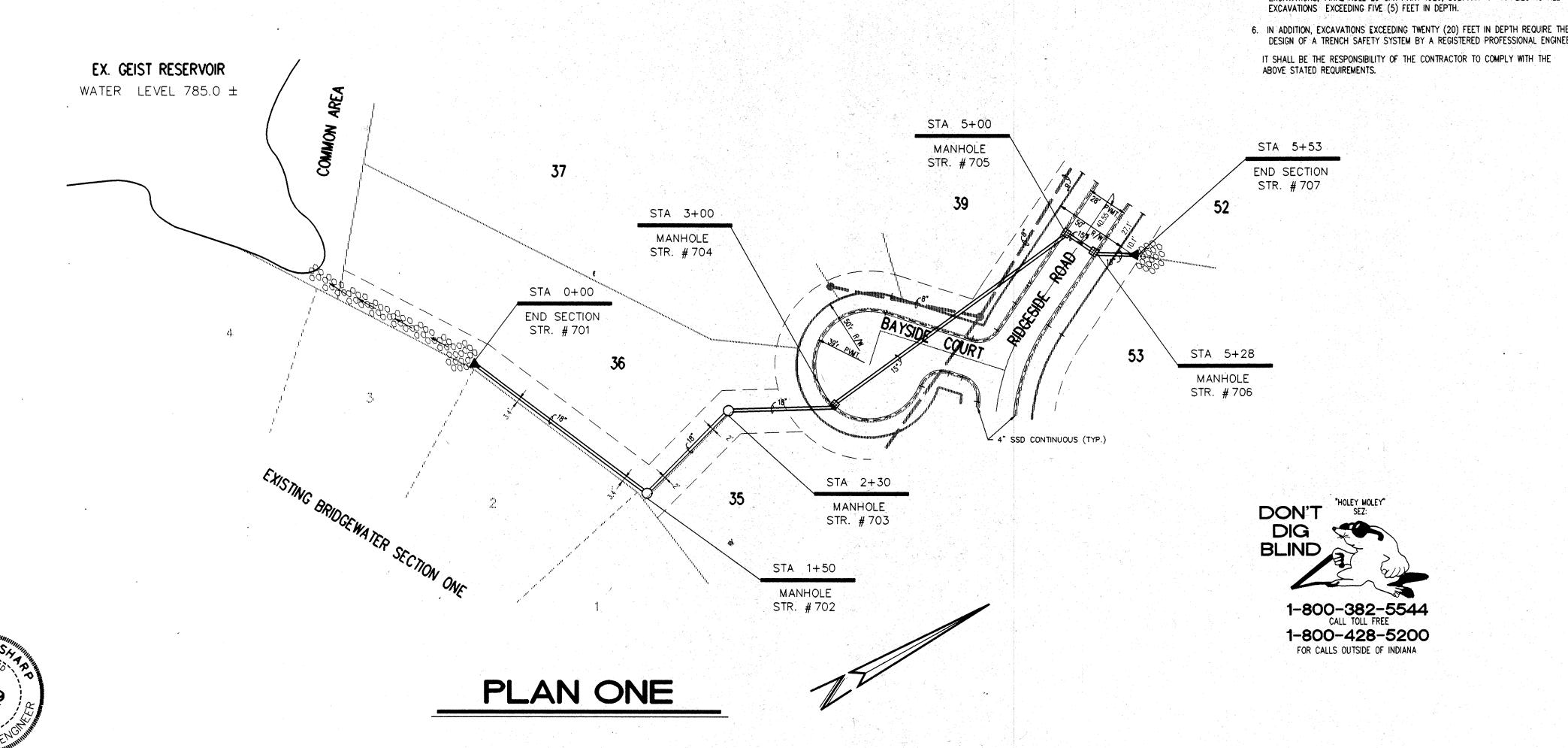
SCALE: 7/08/92

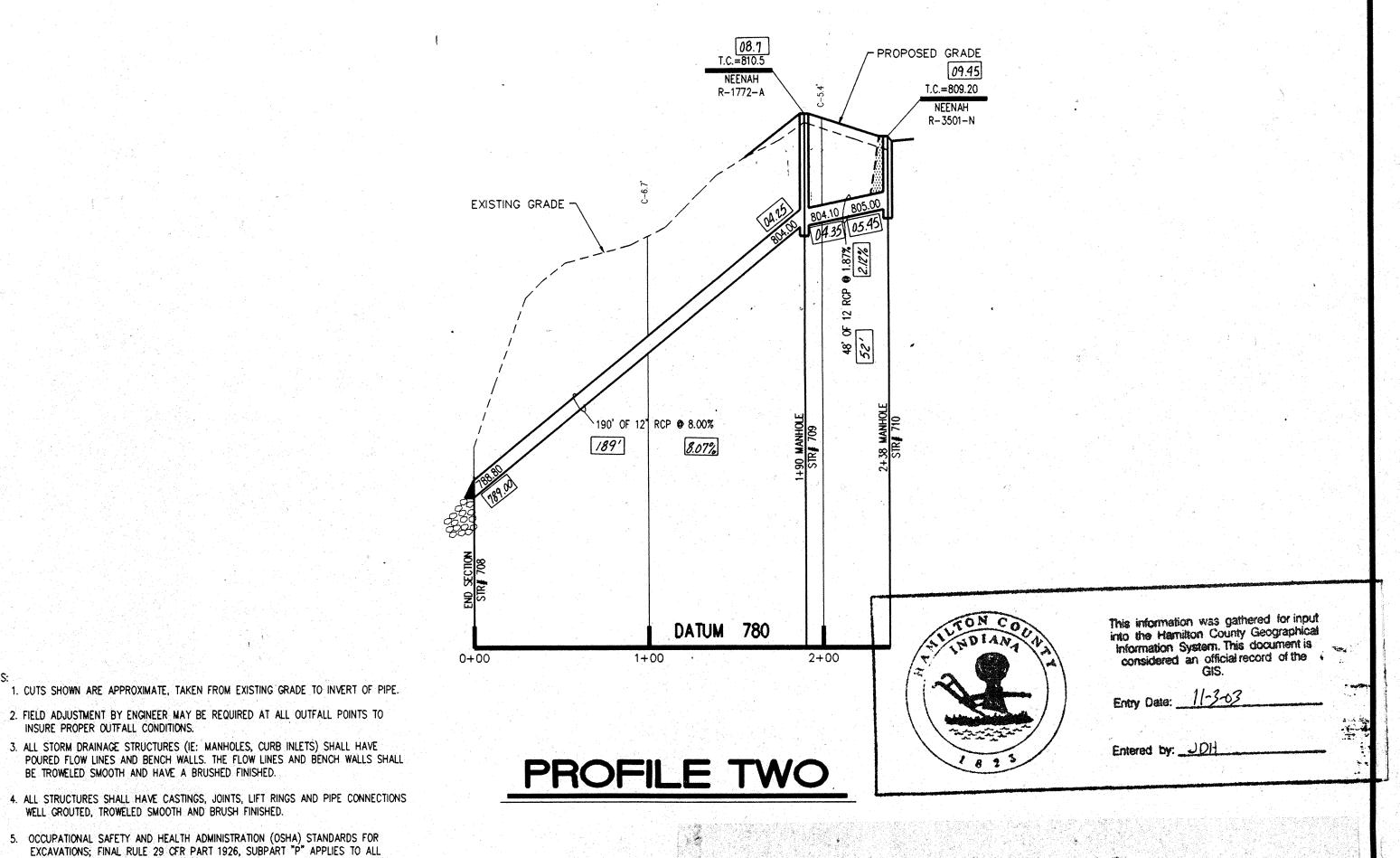
MARINA LTD. PARTNERSHIP COVER SHEET

JOB NUMBER 8 0 1 0 8 - 2 0 2 2 0

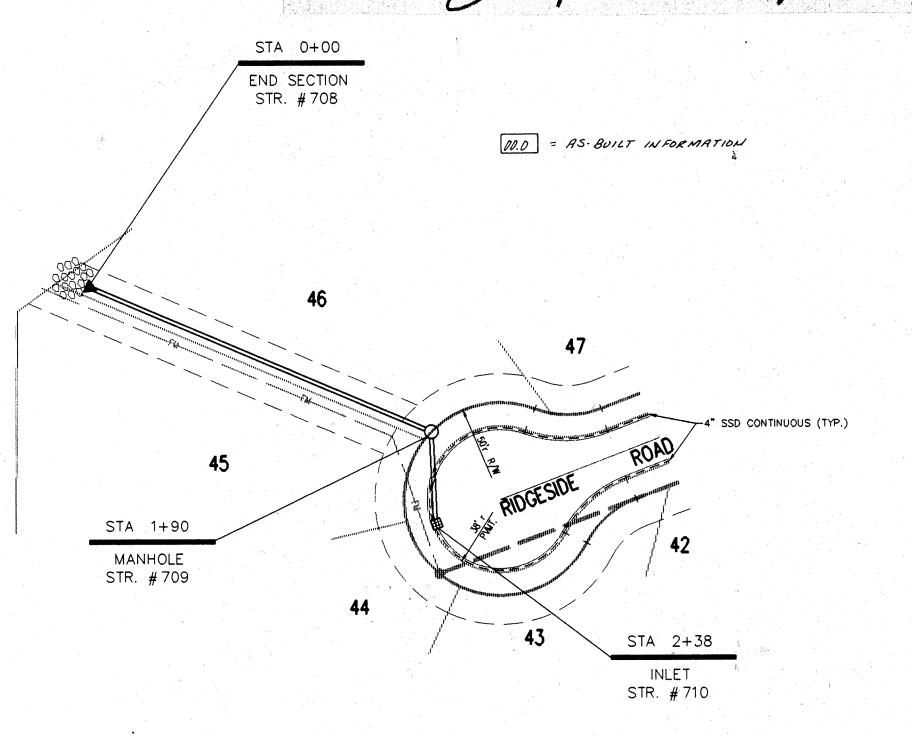


PROFILE ONE





STORM SEWER "AS-BUILTS" CERTIFIED THIS 94 DAY OF Mar. 1993



PLAN TWO

BRIDGEWATER SECTION TWO

CERTIFIED BY: 07/08/92 DATE

REVISIONS 7/27/92 REVISED PER COUNTY COMMENTS

PAUL I. CRIPE, INC. 7172 GRAHAM ROAD INDIANAPOLIS, INDIANA 46250 (317) 842-6777

• CIVIL ENGINEERING

• LAND SURVEYING ARCHITECTURE • LAND PLANNING

CONCEPT CHK:

ENG. CHK:

INSURE PROPER OUTFALL CONDITIONS.

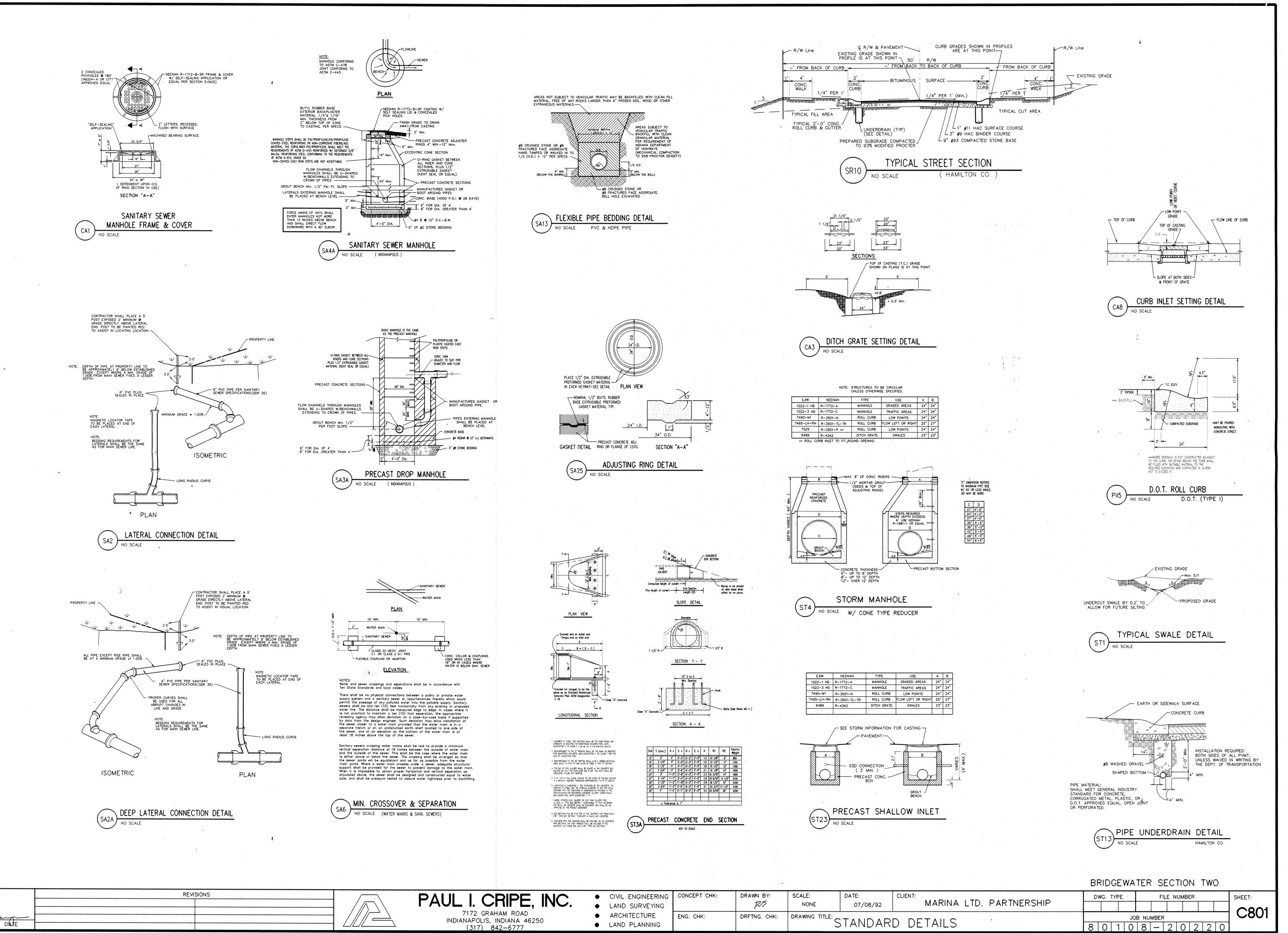
BE TROWELED SMOOTH AND HAVE A BRUSHED FINISHED.

DRAWN BY: SCALE: HORZ. 1"=50' VERT. 1"=5' DRFTNG. CHK:

MARINA LTD. PARTNERSHIP STORM SEWER PLAN & PROFILE

DWG. TYPE FILE NUMBER SHEET: C701 JOB NUMBER 80108-20220

8 0 1 0 8 - 2 0 2 2 0



LAND PLANNING

This copy printed from the Digital Archive of the Hamilton County Surveyor's Office, One Hamilton Co. Square, Ste. 188, Noblesville, In 46060

(317) 842-6777

No.

15179

07/08/92 DATE

CERTIFIED BY:

- Seed and fertilizer shall be spread before mat installation.

Seed type, fertilizer type, and rate of application shall

— Unroll mat flat side against the ground. Unroll mat in

Mat should lay flat. DO NOT PULL MAT TAUT over ground.

- Overlap adjacent edges of mat by 3" (min.) and stake...see

Metal pins or wood stakes are recommended for anchoring mat to

with 1-1/2" diameter steel washer secured at head of pin. Wood

the ground surface. Metal pins should be 3/16" diameter steel

stakes should be 1"x3" nominal stock cut in a triancular shape.

Note that ground fasteners different from those mentioned here

may function adequately. Care must be taken to assure that

fasteners hold mat securely at the surface and have sufficient

- Stake mat to ground on 3 to 5 foot centers. Add extra stakes

at depressions in ground surface where mot bridges over to

- Drive wood stakes to within 3" of ground surface. Do not drive

flush to surface. Steel or plastic pins should be driven flush

- In all transverse terminal trenches and check slots, stake each

mat at its center and at overlapped edges before backfilling

A temporary seeding mixture in the areas where stripping of

fills have been graded shall be seeded for silt and erosion

protection. After grading, all construction areas are to be

2. Sodding: Locally grown Bluegrass blend uniform in color,

Ryegrass and 10# Redtop Bentgrass.

, A. May 15 to August 15; 40#/acre Annaul Ryegrass.

C. March 1 to May 15; 3 bushels/acre Oats.

Wabash Kentucky Bluegrass.

rate of 3/4 tons per acre.

soil to a depth of 2-3 inches.

the preceding requirements

i. Permanent Seeding: March 1 to May 15 and August 10 to

A. Swales/Slopes: Blended mixture of seed shall be applied

or Wabash Kentucky Bluegrass, 30# Fiesta Perennial

B. Graded Area Adjacent to Pavement: Blended mixture of

at the rate of 110 pounds per acre. The mixture shall

consist of 40# Mustang turf-type Tall Fescue, 30# Banff

seed shall be applied at the rate of 90 pounds per acre.

The mixture shall consist of 35# Mustang turf-type Tall

Fescue, 30# Fiesta Perennial Ryegrass and 25# Banff or

B. August 15 to November 15; 2 bushels/acre Rye (grain) or

Mulch: Wood cellulose fibre, straw, shredded hardwood barl

free of weeds, sawdust, or foreign matter. Applied at a

of 600#/acre. Apply lime to raise PH to the level needed

for species being seeded. Work fertilizer and lime into the

6. Fertilizer: Commercial analysis 12/12/12 applied at a rate

7. All Hydroseeding/Hydromulching shall be in accordance with

10. If grading occurs during December, January, or February, no

Stakes should be 9" to 18" long depending on soil density.

- Beginning at up or downstream end bury transverse terminal end

Pulling taut may cause mat to bridge depressions in the

direction parallel with direction of water flow.

comply with seeding specifications.

surface and allow erosion underneath

prevent uplift of mat end by water flow.

Longer anchors are required for loose soils.

- Stake overlaps longitudinally at 3' intervals.

type, density, and thickness.

ground penetration to resist pullout.

assure ground conformity

and compacting.

Scope of Work

October 15.

4. Temporary Seeding:

SECTION 02930 - SEEDING

"Ground Fastening."

Ground Fastening

Mat Placement

STANDARD SPECIFICATIONS Paul I. Cripe, Inc. Last Revision Date <u>4-2-90</u>

SECTION 01010 - GENERAL CONDITIONS 1. The Indiana Department of Highways, Standard Specifications 1989, are the basic materials and reference specification. The sections noted below for various items are to clarify the intent of the requirements for this project. Please

may also be applicable. 2. These specifications in themselves, or when combined with the American Institute of Architects (AIA Document A201) General Conditions of the contract for construction shall be considered as part of the contract.

note that other sections of these Standards Specifications

3. By executing the Contract, Contractor represents that he has acquainted himself with the site and has made all evaluations and investigations necessary to a full understanding of any difficulties which may be encountered in performing the work within the time frame allotted.

4. Any soil investigation data furnished to Contractor by Owner shall be for the convenience of Contractor, and Owner will not be responsible for any variance in actual conditions with such data or interpretations or conclusions drawn therefrom. Data on subsurface conditions do not constitute a representation or warranty of the continuity of such

5. Contractor shall schedule a pre-construction conference with Engineer prior to start of construction to review the plans and scope of project. Contractor shall obtain latest set of drawings prior to start of construction. Minor changes may be made if all reviewing agency approvals are not granted before bidding. Changes in cost shall be negotiated prior to physical construction based on unit prices submitted on the contract documents.

6. The Contractor shall contact all utility companies to locate all mains, conduits, service lines, etc. in the construction affected area. Existing utility structures are shown here in accordance with available information. The location and protection of utility structures and facilities, their support and maintenance during construction (in cooperation with applicable utility), is the express responsibility of the Contractor in the performance of the Contract and in the preparation of the bid. The contractor shall notify the engineer of any changes, errors or omissions found on these plans or in the field before work is started or resumed.

7. The contractor shall be responsible for obtaining or verifying that all permits and approvals are obtained from the respective City, County and State agency prior to starting construction. The contractor shall also be responsible to comply with the conditions set forth within each permit.

8. It is the responsibility of the developer and contractor to maintain quality control management throughout the project Failure to do so may result in removal and replacement of the defective work. It is recommended that the developer have a qualified inspector on the job at all times during construction.

9. It is essential that the work to be done in conjunction with this project be installed according to these plans and specifications. Upon completion, the Engineer will be required to certify to certain portions of this project. Therefore, it is necessary that the work being performed comply with these plans and specifications in order to obtain acceptance by the governing agency.

10. Maintain carefully all bench marks, monuments and other reference points; if disturbed or destroyed, contractor shall contact engineer. Boundary lines of property have been established on the plans and contractor shall exercise care that building lines are established in accurate conformity with dimensions indicated. For construction and grading purposes, a bench mark has been established: the elevation is indicated on the drawings. All vertical dimensions and final grades shall be established from the

bench mark. 11. All quantities given on the prints, verbally or in the Scope of Work section are estimates and shall be confirmed by the

bidding contractor. 12. Contractor shall be required to maintain records of all as-built drawings and construction activity during the construction process. All as-built drawings shall be submitted to the Engineer upon completion.

SECTION 01020 - QUALITY OF WORK

1. Perform all work in the most workmanlike manner and according to the best standard practices. All work shall be free from faults and defects in workmanship. 2. Contractor shall be soley responsible for quality control of the work and shall maintain quality control over suppliers.

manufacturers, products, services, site conditions and workmanship to produce work of specified quality. 3. Required testing and inspection are intended to assist in determination of probable compliances of the work with the Contract Documents but do not relieve Contractor or Subcontractor of responsibility for those compliances. Specified testing and inspection are not intended to limit Contractor's quality control program.

SECTION 01040 - SAFETY

1. Contractor shall take all necessary precautions for the safety of persons and the protection of the work and adjoining property. Contractor shall comply with all applicable provisions of federal, state and local safety laws and building codes.

2. Contractor shall erect and properly maintain at all times, as required by conditions and the progress of the work, all necessary safeguards for the protection of the employees of Contractor, his subcontractors, Owner and its lessee, Owner's other contractors, members of the public and for the protection of the work and adjoining property.

3. All workmanship shall comply with the Occupational Safety and Health Administration Standards.

SECTION 02010 - DEMOLITION

07/08/92

15179

CERTIFIED BY:

 Scope of Work The Contractor shall excavate, demolish, remove and dispose of the debris generated from the demolition of the following A. Building walls B. Foundations

. Pavement and Curbs (concrete, asphalt and brick)). Concrete slabs E. Utilities (i.e. gas, electric, telephone, water and

Underground tanks and septic tanks

Any other items All material as a result of the general demolition shall be roperty of the Contractor. The Contractor's lump sum \bio 声ce for the demolition shall take into account the \$alva∉able value of materials and said bid price shall reflec**±** said savings.

3. The Contractor shall be required to demolish and remove designated foundation walls, retaining walls, curbing, concrete slabs, paving, tanks, structures, pipes, manholes as shown on the Contract Documents, and as may be all existing basement floor slabs that are not removed shall be broken up sufficiently to permit drainage through the slab. All existing basement walls, foundations, floor slabs, and etc., shall be removed to an elevation 2' below existing grade or proposed grade if in an area of cut. All debris generated during the demolition operation shall be removed

and legally disposed of off the site unless alternate bury

pit area is approved by the Construction Manager. 4. The Contractor shall coordinate with the gas, electric, telephone, water and cable TV utilities for disconnection of all utilities. Utility connection shall be removed to the property line limits. Utility relocation and removal shall be included in the price of the demolition bid by the Contractor.

The Contractor shall obtain from Noblesville and Hamilton County, and all other applicable governmental authorities, necessary permits required, a copy of such permits to be furnished to the Owner prior to commencement of any work required herein. The Contractor shall further furnish to the Owner proof that he has compiled with the provisions of the Municipal Code of Noblesville, Indiana.

6. All septic tanks within the limits of building pad and parking areas shall be removed. All others shall be pumped and backfilled with sand or other granular backfill.

SECTION 02110 - SITE CLEARING

Scope of Work

Clearing and grubbing shall consist of cutting, removal and satisfactory disposal of all trees, down timber, brush, projecting roots, stumps, rubbish, boulders, broken concrete, fencing (as designated), and other material on the project site.

All debris generated from the clearing operations stated in Item 1 shall be removed and legally disposed of off the project site; unless a "Bury-Pit", approved by the Construction Manager, can be utilized in an area where it shall not be beneath building areas and/or pavement areas and shall not be located in an area where storm drainage structures shall be located or where impoundment of surface drainage may occur.

3. Materials shall not be disposed of by burning unless approved by the local Fire Marshall and the Construction Manager, and all required permits are obtained by the

4. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the appropriate governmental agency.

necessary to prevent damage to existing improvements indicated to remain in place. a. Protect improvements on adjoining properties and an Owner's property. b. Restore damaged improvements to their original

conditions, as acceptable to parties having

5. Protection of Existing Improvement: Provide protections

jurisdiction. 6. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain inplace, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

SECTION 02210 - STRIPPING

1. The Contractor shall remove all topsoil in the areas to be occupied by roads, parking areas, walks buildings and designated future building fill areas. Topsoil shall be removed to a depth of six (6) inches or deeper, if necessary, to remove vegetative matter where required. See Soils Report for approximate topsail thickness.

2. Topsoil shall be kept separated from suitable fill materials and shall not be used as fill under pavement and building

3. Topsoil shall be stored at a location where it does not interfere with construction operations. 4. Topsoil shall be reasonably free from subsoil debris,

stones, etc. 5. Topsoil shall be spread over all areas to receive seeding and landscaping. Landscaped islands and planting area shall have a minimum of 12 inches of topsoil and seeded or sodded

areas shall have a minimum of 6 inches of topsoil spread. 6. Excess topsoil to be stockpiled in the areas designated on the grading plan, or removed from the site if directed by the owner or engineer.

SECTION 02220 - EARTHWORK

Scope of Work Extent: The work required under this section consists of all excavating, filling, rough grading, backfilling and related items necessary to complete the work indicated on the drawings and described in the specifications.

1. In general, the items of work to be performed under this section shall include: fill compaction and rough and finish grading of entire site as indicated on the drawings including subgrade preparation and grading for streets, building pads, parking lots, walks and general cut and fill.

2. Fill material: shall consist of earth obtained from cut areas, borrow pits or other off—site sources. Earth shall be free from vegetable matter and other deleterious substances and large rocks. Fill obtained from off-site shall be of kind and quality as specified for fills and the source shall be approved by the owner. The fill material shall be placed in layers not to exceed six inches following compaction. Moisture content of fill material will be such that compaction to specified density is possible. All fill beneath paved areas, floor slabs and future buildings shall be compacted to at least 93% of the modified Proctor maximum dry density (ASTM-D-1557) or higher if recommended by Soils

Engineer. See Soil Report by Atec Associates, Inc. dated March 22, 1989 for soil conditions and fill recommendations. 3. Excavate, replace and dispose of site soil materials determined to be unsuitable by Project Engineer or Soils

Engineer if Engineer so directs. 4. Replace unsuitable soil materials with Common Fill Materials specified and backfill, compact and grade the replacement

materials as specified herein. 5. Dispose of unsuitable soil materials on site in the area designated by Engineer and seed as noted. Bury pits can be utilized in nonstructural fill area not restricted by other easements to obtain suitable fill material and waste unsuitable soil and topsoil.

REVISIONS

6. Contractor will be compensated for excavation, replacement and disposal of unsuitable soil materials based on the volume of excavation, time and the contract unit price of

the specified fill. 7. Perform earthwork operations to establish required elevations and dimensions within the following tolerances, except that no talerance will be permitted that would allow a lesser size than indicated for footings and foundations or a lesser thickness than indicated for paving, paving base courses and concrete floor slabs-on-grade. A. Under buildings and paving areas: + 0.10 feet. B. Other Areas: + 0.20 feet.

8. Place topsoil to minimum depths indicated on the planting plans in each respective area. Place topsoil in 6" compacted lifts and develop smooth planting surfaces. Subarade shall be scarified 3" to 6" in depth before topsoil is spread. Remove all vegetation, stones, roots and rubbish from topsoil and rake to even surface. Carefully spread topsoil to meet walks, paving, adjacent properties, and be free of low spots. Finish grade shall be + 1" of finish grade elevations shown on the grading plan.

Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

10. Removal from Owner's Property: Remove waste materials, including surplus excavated material, unacceptable excavated material, trash and debris, topsoil, and legally dispose of it off project site unless otherwise directed. The location of dump and length of haul shall be the Contractor's responsibility.

SECTION 02510 - STREETS AND PARKING LOTS

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 (walks in front of lots to be installed by house contractor)

2. Concrete: Plain concrete pavements shall be constructed in accordance with Section 501 of the Indiana Dept. of Highways Specifications. 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 6 bags per cubic yard of concrete and maximum water content shall be 5.5 U.S. gallons per sack of cement, including moisture in the aggregate. Slump for normal weight concrete shall be a maximum of 4 inches and a minimum of 2 inches. The slump of machine placed concrete shall be no less than 1-1/4 inches nor more than 3 inches. Standard test ASTM C-143 shall be used to measure slump. Compressive strength of concrete at 28 days shall be 4000 psi. All exterior concrete shall have air entrainment of 5% to 8% by volume per ASTM C-260. Retempering of delivered concrete will not be allowed. Concrete shall be composed of: A. Portland Cement: Conforming to ASTM C-150, Type IA or

Type IIIA. B. Aggregates: Conforming to ASTM C-33. C. Water: Shall be clear and free from injurious amounts of oils, acids, alkalies, organic materials or other

deleterious substances. 3. Welded Steel Wire Fabric: Where required for concrete reinforcement shall conform to ASTM A185. 4. Premoulded Joint Filler: Shall be of non-extruding type

in concrete walk construction may be either non-extruding or 5. Bituminous Pavement Materials: All materials proposed for the construction of bituminous pavements shall comply with the Indiana Department of Highways Specifications, per

meeting ASTM D-544, except that premoulded joint filler used

latest revisions (Section 403). 6. Compacted Aggregate Subbase: Shall be crushed stone or gravel. Crushed gravel shall be a minimum of 35% crushed material. Chert shall be limited to a maximum of 8% of the total. Material shall be free from an excess of flat. elongated, thinly laminated, soft or dissintegrated pieces; and shall be free from fragments coated with dirt. Compacted aggregates shall be graded as follows:

SIEVE SIZE % PASSING 1-1/2" 100 80-100 70-90 55-80 35-60 25 - 5012 - 30

7. Tack and Prime Coats: To assure bond between base and binder courses or between binder and surface courses, apply complete tack and prime coating. Place binder and/or surface course immediately after applying tack or prime coat after an appropriate drying time.

A. Apply tack coat to contact surfaces of previously constructed asphalt or portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.05 to 0.15 gallon per square yard of surface. Cut—back asphalt type: AASHTO M 82 (ASTM D 2027) MC-30, MC-700, MC-250.

B. Apply prime coat over compacted base stone. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile. Distribute at a rate of 0.2 to 0.5 gallon per square yard. Emulsified asphalt; AASHTO M140 (ASTM D 997) or M208 (D 2397); SS-1, SS-1H, CSS-1 diluted with one part water to one part emulsified

8. Striping Materials: Traffic paint, white, chlorinated rubber base, factory mixed, quick drying, non-bleeding: conforming to Fed. Spec. TT-0-115C, Type II and conforming

to ISHSS Section 908. 9. Grading: Do any necessary grading to that performed in accordance with Earthwork Section, to bring subgrades, after final compaction, to the required grades and sections for site improvement.

10. Preparation of Subgrade: Remove spongy and otherwise unsuitable material and replace with stable material. No traffic will be allowed on prepared subgrade prior to

11. Compaction of Subgrade: The first 6 inches below the subgrade shall be compacted to at least 95% of the maximum dry density as determined by the provisions of AASHTO T-99. Water shall be prevented from standing on the compacted subgrade. Clay and silty clay soil shall be compacted at a moisture content 1% to 2% above optimum moisture to reduce future volume changes

12. Acceptance of Subgrade: The placing of the stone base constitutes that the paving contractor has accepted the condition of the subgrade and accepts full responsibility for maintaining the grade elevations and contours indicated on the Drawings. Subgrade should be inspected and tested by the appropriate governmental agency prior to pavement construction. Should the paving contractor refuse acceptance of the

subgrade, he shall notify the General Contractor immediately of the deficiencies. Should the paving contractor fail to notify the General Contractor of any deficiencies and/or proceed in the placing of the stone base, said actions shall constitute acceptance of subgrade.

13. Utility Structures: Check for correct elevation of all manhole covers, valve boxes and similar structures located within areas to be paved, and make, or have made, any necessary adjustments in such structures. 14. Placing Concrete:

A. Subgrade: Place concrete only on a moist, compacted subgrade or base free from loose material. Place no concrete on a muddy or frozen subgrade. B. Forms: All forms shall be free from warp, tight enough to prevent leakage and substantial enough to maintain their shape and position without springing or settling,

when concrete is placed. Forms shall be clean and

smooth immediately before concreting. C. Placing Concrete: Concrete shall be deposited so as to require as little rehandling as practicable. When concrete is to be placed at an atmospheric temperature of 35 degrees F. or less, paragraph 702.10 of the Indiana Department of Highways Specifications, latest

revision shall be followed. 15. Concrete Curb and Gutter: A. Expansion Joints: Shall be 1/2 inch thick premoulded at

ends of all returns and at a maximum spacing of 100 B. Contraction Joints: Unless otherwise provided, contraction joints shall be sawed joints spaced 20 feet

on center. C. Finish: Tamp and screed concrete as soon as placed, and fill any honey combed place. Finish square corners to 1/4 inch radius and other corners to radii shown.

16. Concrete Walks and Exterior Steps conforming to Section 604 of the Indiana Dept. of Highways Specifications. A. Slopes: Provide 1/4 inch per foot cross slope. Make adjustments in slopes at walk intersections as necessary to provide proper drainage.

B. Dimensions: Walks and steps shall be one course construction and of widths and details shown on the C. Finish: Screed concrete and trowel with a steel trowel to a hard dense surface after surface water has disappeared. Apply medium broom finish and scribe

control joints at 5 foot spacing. Provide 1/2 inch expansion joints where sidewalks intersect, and at a maximum spacing of 48 feet between expansion joints. Wheel chair ramps shall be provided as detailed. 17. Curing Concrete: Expect as otherwise specified, cure all concrete by one of the methods described in Section 501.17 of the Indiana Department of Highways Specifications, latest

18. Bituminous Pavement: Hot asphalt concrete pavement shall be as specified in Section 403 of the Indiana Department of Highways Specifications, latest revisions. Paving will not be permitted during unfavorable weather or when the temperature is 40 degrees F. and falling.

19. Compacted Aggregate Subbase: The thickness shown on the drawings is the minimum thickness of the fully compacted subbase. Compaction shall be accomplished by rolling with a smooth wheeled roller weighing 8 to 10 tons. Compact to 100% of maximum dry density in accordance with Section 304.05. Along curbs, headers and walls and at all places not accessible to the roller, the aggregate material shall be tamped with mechanical tampers or with approved hand

20. Construction within Right-of-Way: All street construction within the lines of dedicated right-of-way shall be in accordance with the Specifications of Hamilton County. 21. Pavements built by stage construction, that is pavements

used to carry traffic before the full pavement structure is in place, will have each stage used by traffic inspected by the County Engineer for distressed areas before the next stage is started. Distressed areas will be repaired to the satisfaction of the Engineer before an additional stage is constructed.

22. Street and Traffic Control Signs: Street name and traffic control signs shall be furnished at the developer's expense and installed prior to the release of the performance bond or prior to the issuance of the first occupancy permit. whichever occurs first. The signs shall be installed on one post at each street intersection at an appropriate spot in the northeast corner wherever possible. Signs and posts shall be standard sizes and colors on reflective surfaces in accordance with Section 909 and 912 of the Standard Specifications of the Indiana Dept. of Highways.

SECTION 02620 - UTILITIES (Gas, Electric, Telephone and T.V.)

1. Utilities: 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 before work is started. The contractor shall notify in writing the owners or the Engineer of any changes, errors or omissions found on these plans or in the field before work is started or resumed. 2. If active utilities are encountered but not shown on the

drawings, the Engineer and utility representative shall be advised before work is continued. 3. Inactive and abandoned utilities encountered in excavating and grading operations shall be reported to the Engineer and utility company. They shall be removed, plugged or capped as directed by the utility company and Engineer.

4. Rules and regulations governing the respective utilities shall be observed in executing all work under this section. 5. Granular backfill shall be required for all utility crossings under pavement areas except for utilities which are bored or pushed under street.

6. Conduit shall be required for all crossings under pavement areas. Contractor shall coordinate with each respective utility for their location and installation. Conduit shall

be 4" PVC Schedule 20 or approved equal.

7. Existing storm sewers, sanitary sewers, water mains, gas mains, electric ducts, telephone ducts, steam mains and other underground structures and their house connections have been shown on the plans according to the best available information. The exact location and protection of these facilities and structures, their support and maintenance in operation during construction (in cooperation with the proper authorities of the utility involved), is the express responsibility of the Contractor in the performance of his contract and in the preparation of his bid.

SECTION 02720 - STORM SEWERS

Scope of Work

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

2. Standard specifications of City of Noblesville and Indiana Dept. of Highways Standard Specifications shall apply for all work and materials. Pipe shall be installed in accordance with Section 715. 3. All storm sewer pipe shall be reinforced concrete pipe

conforming to ASTM Designation C-76 Class III, unless otherwise noted, in accordance with Section 906. Joints shall conform to ASTM C-433 latest revision. 4. Subdrainage system shall be installed as shown on plans and be of pipes designated in Section 906 of Indiana Dept. of Transportation specifictions as follows:

one of the following: A. Perforated Corrugated drainage pipe in accordance with AASHTO M252 or AASHTO M 294. PVC shall have minimum cell classification conforming to requirement of 12344-C ASTM D-1784.

Pipes to be installed for subsurface drainage only may be.

B. Concrete drain tile in accordance with AASHTO M178. C. Vitrified Clay tile in accordance with AASHTO M179. Where pipe is to be used for a collector of other subsurface laterals and/or sump pumps and installed with provisions for cleaning, it may be one of the following:

A. ABS Composite in accordance with ASTM D-2680. B. PVC in accordance with ASTM D-3034 SDR-35. C. PVC Corrugated with smooth interior in accordance with ASTM F949.

5. Backfill around all structures and cuts under paved areas and within 10 feet of pavement edges with granular material in accordance with Section 21.1 and 715. Select Granular Fill — Well graded sand and gravel or crushed stone that has a uniformity coefficient (ASTM D-2487) of aggrregates and contains less than 5 percent (by weight) fines passing a No. 200 Sieve size. Onsite excavated granular materials may be utilized if approved by the Soils Engineer.

6. See standard detail sheet for construction dimensions of storm structures. Manholes, inlets and catch basins shall be in accordance with Section 720. Precast concrete and steel for manholes and inlets shall be in accordance with ASTM C-478, latest revision. Six inch and 8" segmental black manholes sealed with 1/2" mortar on the entire inside surface of the inlet. Steps shall be ductile iron or aluminum integrally cast into catch basin sidewalls.

7. The Contractor shall provide a minimum of 1' of cover over all storm sewers. 8. Rip rap shall be a minimum 6" and a maximum of 17" in size and a minimum 18" in depth. Dimensions for rip rap on this

plan are for estimating purposes only. Actual best placement of rip rap shall be determined by field conditions and shall be in accordance with Section 616. 9. All drainage pipe and ditch outfalls to receiving streams shall be constructed in accordance with drawings, subject however, to any modification required by Engineer at the time installation is completed and to any adjustments needed for field conditions not adequately anticipated by the

design drawings. 10. Castings shall be as shown on detail sheet for manufacturer, type and number. All castings shall be Neenah or East Jordan approved equal. Castings shall be gray iron meeting

ASTM A-48, latest revision. 11. Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements and other special installation requirements.

12. Place plugs in ends of incomplete piping at end of work day or whenever work stops, and at stubs for future development. 13. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Notch under pipe bells where applicable to provide solid bearing for entire body of

14. Trenching: Lay all pipe in open trenches, except when the local authority gives written permission for tunneling. Open the trench sufficiently ahead of pipe-laying to reveal any obstructions. The width of the trench shall be the inside pipe diameter plus 24 inches for 12 inches above the pipe. Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Keep trenches free from water while construction is in progress. Under no circumstances lay pipe or appurtenances in standing water. Conduct the discharge from

trench dewatering to drains or natrual drainage channels. 15. All pipes on steep slopes (over 20%) shall have concrete anchor approximately 1/3 cu. yd. at maximum 40 foot

16. 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. Tamp this backfill thoroughly, taking care not to disturb the pipe. For the remaining trench depth, backfill with earth or granular mataerial containing stones or rocks not larger than 4 inches. Backfill under walks, parking areas, driveways and streets shall be granular material only thoroughly compacted, by approved methods. Trenches parallel to and within 5 feet of paved roadways shall be

constructed the same. 17. 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. Make changes in size or grade gradually and changes in direction by true curves. Provide such channels for all connecting sewers at each manhole.

SECTION 02730 - SANITARY SEWERS

Scope of Work

The work under this section includes all sanitary sewers, manholes, castings, cleanouts, testing, permits, governmental inspections and approvals, fees, surveying layout, and related items, including excavation, backfill, granular fill, and dewatering necessary to complete the work shown on the drawings.

2. Specifications of Hamilton Southeastern Sanitary District for design and construction of sanitary sewer shall govern for all installation and materials 3. Sanitary sewer pipe shall be "Armco Truss-Pipe" conforming

to ASTM, D-2680 or PVC in accordance with ASTM D-3034 (S.D.R. 35) and ASTM 2321. Minimum cell classification for PVC and PVC Truss pipe shall be 12454-B or 12454-C. 4. For all sanitary sewer joints, the Contractor shall use gasket type joints. No glue joints shall be allowed;

installed and manufactured in accordance with ASTM C-425. 5. All sanitary manholes shall be "precast concrete" manholes in accordance with ASTM C-478 and Section 720. Kent seal shall be used at manhole section joints. The bedding beneath sewer manholes shall be a minimum of 6 inches of #2

stone beneath the manhole base. 6. The type of manhole ring and cover shall be as specified on

the standard detail sheet of these plans. 7. The casting elevations are set by plan. However, the castings are to be adjusted in the field by the Engineer's representative should a discrepancy occur between plan grade and existing grade. Castings should be set 3 inches above grade in unpaved areas and graded for positive drainage away from manhole.

8. No construction of sanitary sewers will be allowed to commence until a valid construction permit per 327 LA.C. Article 3 from the Indiana Dept. of Environmental Management is obtained.

9. Backfill around all structures and all cuts under paved areas with granular material. Trenches opening within 5 feet of paved roadways shall be backfilled with granular material in accordance with Section 211. 10. The Contractor shall be responsible for verifying that all

State, City and County permits have been obtained by developer prior to start of construction The Contractor shall be required to furnish the Engineer with a set of prints, marked in red pencil, showing actual sewer location and invert, to include lateral location, depth and length. Such "as-built" prints must be received by the Engineer before the final contract payment can be

authorized. The sanitary sewer laterals and stubs

termination shall be indicated on the surface with a metal fence post set immediately above said termination point. 12. All sanitary sewer lines upon completion will be required to pass a low pressure air test or infiltration test, unless otherwise directed by the Engineer. Said test shall be conducted according to NCPI Standard Method, and shall be witnessed by an Engineer. Infiltration under test shall not exceed 100 gallons per inch of inside diameter of sewer pipe per mile of sewer in 24 hours and inclusive of all appurtenances within the section being tested such as

13. Deflection tests shall be performed on all flexible* pipe after the final backfill has been in place at least 30 days. No pipe shall exceed a vertical deflection of 5%. (*The following are considered nonflexible pipes: concrete pipe, ductile iron pipe, cast iron pipe, asbestos cement pipe.) 14. All testing and inspections will be the responsibility of

manholes, house connections, etc.

Engineer for certification. 15. The ends of laterals are to be plugged tight with plastic disc or cap capable of withstanding a low pressure air test

16. Class C bedding as described in ASTM C-12-74 (ANSIA 106.2)

the Contractor and shall be observed by a Professional

or ASC MOP No. 37 shall be used, except where specified otherwise. All precast manholes shall be bedded on a granular foundation (6 inches minimum). 17. Water and sewer lines crossings and separations shall be in accordance with Ten State Standards and local codes. A. Where water lines and sewer lines cross and the water line cannot be placed a minimum of 18" above the sewer line, with a minimum cover of 48", the sewer lines shall

be constructed of waterworks grade cast iron pipe with mechanical joints. B. Where water lines and sanitary sewer lines run parallel

with one another, a minimum of 10' horizontal separation shall be maintained. 18. Trench shall be opened sufficiently ahead of pipe laying to reveal obstructions, and shall be properly protected and/or barricaded when left unattended. Lay all pipe in open trenches, except when the local authority gives written permission for tunneling. The width of the trench shall be 1 1/4 times the outside diamater plus 12". Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching to comply with Occupational Safety and Health Administration Standards. Keep trenches free from water while construction is in progress. Under no circumstances lay pipe or appurtenances in standing water. Conduct the discharge from trench dewatering to drains or

natrual drainage channels. 19. Forty-eight (48) hour notice shall be give to Hamilton Southeastern Utility prior to the start of sewer construction. Also, 48 hour notice shall be given prior to

any testing done on the sewer 20. All connections to existing manholes shall be core drilled. 21. All pipe openings in manholes, including laterals, shall be fitted with rubber rings or gaskets. Manhole sections shall have "O" rings, which shall meet ASTM C-433. Manhole waterstops shall be installed at all connections to manholes, where flexible—type manhole connections are not

22. The contractor will be required to provide as-built drawings to the accepting agency to certify the elevation and slope of sanitary sewers. Sewers installed at a grade less than required by Ten State Standards will not be accepted and will be the contractor's responsibility to install properly. Contractor shall provide for periodic as—built checks on the sewer elevation during construction to assure that the

design grade is being maintained. 23. The minimum thickness for concrete encasement shall be 6

24. Pipe bedding shall be a minimum of 12" of #8 stone above the pipe and a minimum of 4" below the pipe. 25. The flow channels through manholes shall be U-shaped with the benchwalls extending to the crown of the incoming and

26. All sanitary sewer pipe crossing bodies of water must be ductile iron pipe with mechanical joints. In addition, where there is less than 4 feet from the crown of the pipe to the stream bed, the pipe must be encased in concrete.

27. No water shall be permitted to flow into the sanitary sewer

storm outlet. 28. 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

29. No building lateral connections shall be permitted until the sanitary sewer has been tested, inspected and accepted by the governing agency. Failure to comply may require additional testing, cleaning and televising of sewer lines to obtain acceptance.

SECTION 02910 - SOIL EROSION CONTROL SEQUENCE

construction

The following is a list in sequence of construction activities to control soil erosion:

2. Mass grade the site (sides of swales, mounds and ponds to be seeded and mulched immediately upon completion). Temporary seeding shall be recommended for all swales and disturbed areas that cannot be final seeded within a time period that will prevent slope erosion. For temporary seeding, the contractor shall utilize a fast growing seed of either oats, annual ryegrass, wheat or rye depending on time of year.

3. Contactor shall control mud accumulation on all streets surrounding project by installing stone surface at all Chloride, vegetative cover, spray on adhesives or other approved methods.

4. Maintain all filters and traps during construction to prevent any blockages from accumulated sediment. Additional seeding and straw bales may be required during construction as specified by Engineer or Soil Conservation Service. Rip rap shall be placed in areas of high velocity stream flow (minimum size 1/3 cu. ft.). Payment for additional rip rap (not shown on plans) and seeding shall be paid for on a unit

subsurface drains, and water mains. Straw bale filters shall be installed at all storm inlets (including street inlets), and all temporary drainage swales at 100 ft.

7. All disturbed areas shall be seeded and mulched as specified 8. Contractor shall maintain all temporary erosion control measures throughout the construction phase of this project and remove all temporary erosion and sediment controls only

Erosion control blanket shall be a machine-produced mot of 100% agricultural straw. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with polypropylene netting having an approximate $5/8" \times 5/8"$ mesh, and on the bottom with a polypropylene, netting with an approximate 1/4" x 1/4" mesh. The blanket shall be sewn together with cotton thread. Straw erosion control blanket (or low velocity channel lining) shall be S105 as manufactured by North American Green, or equivalent. Erosion control blanket or channel lining shall have

Material Content: 100% (.5 lb/sq. yd.) (.27 kg/m2) Straw One side lightweight photodegradable (1 lb/1000 sq. ft. approx. wt.)

Physical Specifications (Roll):

before placing mat.

mat at approximately 25' intervals.

Width 6.5 foot (2m) 83.5 foot (25.4m) 30 lbs + 10% (13.6 kg)

60 sq. yds. (50m2) Site Preparation - Smooth grade and compact all areas to be covered with mat. - Remove all rocks, dirt clods, grass clumps, trash, and other obstructions that will lift mat from ground surface. Anchor Trenches - The mat must be anchored at the upstream and downstream ends of the protected area and intermittently in between.

- Excavate end trenches to a minimum of 12" deep and 6" wide

- Dig intermittent check slots 6" deep by 6" wide transverse to

system. Contractor shall utilize a pump to keep the water level below the pipe. Pump discharge shall be directed to a

of at to secure and prevent erosion flow underneath. - Fold and secure mat snugly into all transverse check slots. - Backfill and compact trenches and check slots after staking the mat in bottom of trench...see "Ground Fastening." - Bury final terminal end as prescribed above. - Overlap roll ends by 3' (min.) with unslope mat on top to

. Contractor shall install sediment traps and straw bale filters, as shown

Disturbed areas shall be kept to a minimum at all times.

locations where construction traffic leaves the site. Dust shall be kept to a minimum by utilizing sprinkling, Calcium

5. Contractor shall install all sanitary sewers, storm sewers,

6. All proposed street areas shall be paved as soon as possible after subgrade is prepared.

when there is a sufficient growth of ground cover to prevent further erosion.

SECTION 02912 - EROSION CONTROL BLANKET

the following properties.

8. Sediment Control Fabric: Fabric shall be non-woven One side heavyweight photodegradable construction composed of polypropylene and shall be (3 lb/1000 sq. ft. approx. wt.) ultraviolet stabilized. 9. If temporary seeding is established prior to permanent seeding, the mulch may be eliminated except in "bare" areas.

> seeding to take place till spring planting time; however, it is imperative that all sediment filters and traps are in place prior to bulk earthmoving or clearing. 11. All areas along street (approximately 25 foot behind curb)

> > 12. All lots/outlots where grading has occured and no construction is expected to occur within 60 days, shall be filled with additional 3" topsoil and seeded with the temporary seeding process. 13. During dry weather, keep lawns watered with sprinklers or other approved methods. Reseed any areas not germinating or damaged at intervals as may be required according to

seasonal condition. Water grass and execute necessary

weeding until acceptable and full stand of grass has been

shall be seeded with permament seed mixture.

obtained. Upon acceptance by the Owner, the Owner shall assume maintenance of the lawn areas. 14. All dates shown are nominal and may be varied with concurrence of the Engineer or the Local Soil Conservationist.

BRIDGEWATER SECTION TWO

FILE NUMBER DWG. TYPE JOB NUMBER

SHEET:

C901

PAUL I. CRIPE, INC. 7172 GRAHAM ROAD

INDIANAPOLIS, INDIANA 46250

(317) 842-6777

 LAND SURVEYING ARCHITECTURE LAND PLANNING

CIVIL ENGINEERING | ENG. CHK:

TECH. CHK:

RIS DRFTNG. CHK:

DRAWN BY:

NONE DRAWING TITLE:

SCALE:

outgoing pipes.

07/08/92

MARINA LTD. PARTNERSHIP STANDARD SPECIFICATIONS

8 0 1 0 8 - 2 0 2 2 0

