Drain: KINGSOROUGH DRAIN Drain #: 297
Improvement/Arm: BROOKESTONE PARK OF CORMEL
Operator: Date: 2-404
Drain Classification: Urban/Rural Year Installed: 2003

GIS Drain Input Checklist

•	Pull Source Documents for Scanning	JAJ 2-4
•	Digitize & Attribute Tile Drains	NA
•	Digitize & Attribute Storm Drains	922-4
•	Digitize & Attribute SSD	grz 2-4
•	Digitize & Attribute Open Ditch	NA
•	Stamp Plans	GH 2-4
•	Sum drain lengths & Validate	JA 7-4
•	Enter Improvements into Posse	JB2-4
•	Enter Drain Age into Posse	July 3-2
•	Sum drain length for Watershed in Posse	Jr 13-2
•	Check Database entries for errors	JEST 2-4
		//

Gasb 34 Footages for Historical Cost <u>Drain Length Log</u>

Drain-Improvement: KINGS BOROUGH ORAIN - BROOKSTONE PARK OF CARAMEL

Drain Tyra-	0.	succength	Length	Length	WA:	
Drain Type:	Size:		(DB Query)	Reconcile	Price:	Cost:
<i>550</i>	6"	3,652'	3652'	0	2,00	7,304,00
SSO RCP	12"	553.22'	553,22'	Ø	7.25	4,010,85
	18"	138'	553,22' 38'	Ø	10,50	1,449,00
					7.185 <u>7.184</u>	
· · · · · · · · · · · · · · · · · · ·						
					<u></u>	
	Sum:	4343.22	4343,221	9	······	\$12,763.8s
inal Report:						·
Comments:						
					·	-



Kenton C. Ward, Surveyor Phone (317) 776-8495 Fax (317) 776-9628

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

To: Hamilton County Drainage Board

April 23, 2003

Re: Kingsborough Drain, Brookstone Park of Carmel, Section 2 Arm

Attached is a petition filed by Brookstone Park of Carmel, LLC along with a non-enforcement request, plans, calculations, quantity summary and assessment roll for the Brookstone Park of Carmel, Section 2 Arm, Kingsborough Drain to be located in Clay Township. 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:

6" SSD 4,108 ft

12" RCP 544 ft

18" RCP 140 ft

The total length of the drain will be 4,792 feet.

The retention pond located in Block "A" is not to be considered part of the regulated drain. Only the inlet and outlet will be maintained as part of the regulated drain. The maintenance of the pond will be the responsibility of the Homeowners Association. The Board will also retain jurisdiction for ensuring the storage volume for which the lake was designed will be retained. Thereby, allowing no fill or easement encroachments.

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 and right of way, are to be maintained as regulated drain. Laterals for individual lots will not be considered part of the regulated drain. The portion of

the SSD which will be regulated other than those under curbs are as follows:

Rear lots 59 through 66 in Block "A".

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 for common areas and platted lots, \$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 \$1,384.66.

The petitioner has submitted surety for the proposed drain at this time. Surety will be submitted prior to the approval of the Hamilton County Board of Commissioners/commencement of construction. The sureties, which are in the form of a Performance Bond/Letter of Credit, are as follows:

Agent: Insco Insurance Services, Inc. Agent: Insco Ins. Services

Date: October 3, 2002 Date: October 3, 2002

Number: 887707S Number: 887708S

For: Storm sewers & Underdrains
Amount: \$39,432.00

For: Erosion Control
Amount: \$20,880.00

Parcels assessed for this drain may be assessed for the Osborne-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. The request is for the reduction of the regulated drain easement to those easement widths as shown on the secondary plat for Brookstone Park of Carmel, Section 2 as recorded in the office of the Hamilton County Recorder.

I recommend the Board set a hearing for this proposed drain for May 27, 2003.

Kenton C. Ward

Hamilton Coxinty Surveyor

KCW/llm

Brookstone Park of Carmel Section II

Engineers Estimate For

Hamilton County Surveyor

For Letter of Credit or Performance Bond

	DESCRIPTION	UNIT	QTY	UNIT	TOTAL
				PRICE	AMOUNT
	-				
<u>C Sur</u>					
	12" RCP	LF	672	\$35.00	\$23,520.00
	12" RC End Sections	EACH	5	\$750.00	\$3,750.00
	18" RCP	LF	140	\$43.00	\$6,020.00
	24" RCP	LF	406	\$50.00	\$20,300.00
	Inlet Type "A"	EACH	2	\$1,600.00	\$3,200.00
	Manholes	EACH	9	\$2,500.00	\$22,500.00
	Subsurface Drains	LF	4155	\$5.75	\$23,891.25
	Subsurface Risers	EACH	4	\$250.00	\$1,000.00
	Aggregate for Underdrains	YD^3	155	\$20.00	\$3,100.00
. "	Subsurface Laterals to Lots	EACH	42	\$150.00	\$6,300.00
	Temporary Seeding	LBS	570	\$3.50	\$1,995.00
	Permanent Seeding	LBS	1390	\$7.00	\$9,730.00
	Erosion Control Blanket	YD ²	1550	\$2.50	\$3,875.00
	Silt Fence	LFT	1200	\$4.00	\$4,800.00
	#2 Stone (Const. Entrance)	YD^3	60	\$25.00	\$1,500.00
	Straw Bales	EACH	8	\$60.00	\$480.00
	Monument Markers	EACH	9	\$40.00	\$360.00
		***			A / 22 22 / 23
			 	TOTAL	\$136,321.25

Marco Marco Marco

MAY 23 2002

OFFICE OF HAMILTON COUNTY SURVEYOR





ID-1006 (REV. 1/01)

INSCO INSURANCE SERVICES, INC. Underwriting Manager for:

Developers Surety and Indemnity Company Indemnity Company of California 17780 Fitch, Sulte 200 • Irvine, California 92614 • (949) 263-3300

SUBDIVISION IMPROVEMENTS PERFORMANCE BOND

	BOND NO. 887707S
KNOW ALL MEN BY THESE PRESENT	rs:
THAT we, Brookstone Park of Carmel, LLC	, as Principal,
and Developers Surety and Indemnity Company business and under and by virtue of the law	, a corporation organized and doing
licensed to conduct surety business in the Sare held and firmly bound unto Hamilton Co	state of Indiana
as Obligee, in the sum ofThirty-Nine Thousa	nd Four Hundred Thirty-Two & N0/100
for which payment, well and truly to be mointly and severally firmly by these presen	(\$39,432.00) Dollars, ade, we bind ourselves, our heirs, executors and successors, ts.
THE CONDITION OF THE OBLIGATION	N IS SUCH THAT:
WHEREAS, the above named Principal, ha	s agreed to construct in Brookstone Park of Carmel, Section II
following improvements: Storm Sewers & Unc	Subdivision, in Carmel, Indiana the
erm that may be granted by the Obligee with otherwise it shall remain in full force and ef N WITNESS WHEREOF, the seal and sign	nature of said Principal is hereto affixed and the game rate and
nd the name of the said Surety is hereto aff	ixed and attested by its duly authorized Attorney-in-Fact, this year year
	Brookstone Park of Carmel, LLC Principal BY:
	Developers Surety and Indemnity Company
	BY: Cyptlia X. Denus

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HCDB-2002-00351



INSCO INSURANCE SERVICES, INC.

Underwriting Manager for:
Developers Surety and Indemnity Company
Indemnity Company of California
17780 Fitch, Suite 200 • Irvine, California 92614 • (949) 263-3300

SUBDIVISION IMPROVEMENTS PERFORMANCE BOND

	BOND NO.	887708S
KNOW ALL MEN BY THESE PRESENTS:		
THAT we, _Brookstone Park of Carmel, LLC		no Deire di 1
andDevelopers Surety and Indemnity Company business and under and by virtue of the laws of the State of licensed to conduct surety business in the State ofIndiana	of lowa	and duly
are held and firmly bound unto Hamilton County, Indiana Boa	ard of Commissioners	, as Surety,
as Obligee, in the sum of Twenty Thousand Eight Hundred Eig	hty & N0/100	
for which payment, well and truly to be made, we bind controlly and severally firmly by these presents.	ourselves, our heirs, execu	0) Dollars, tors and successors,
THE CONDITION OF THE OBLIGATION IS SUCH TH	łat:	
WHEREAS, the above named Principal, has agreed to con	nstruct in Brookstone Park of (Carmel, Section II
following improvements: Erosion Control	on, in <u>Carmel, Indiana</u>	the
NOW, THEREFORE, the condition of this obligation is struly perform said agreement or agreements during the orderm that may be granted by the Obligee with or without no otherwise it shall remain in full force and effect. IN WITNESS WHEREOF, the seal and signature of said Pland the name of the said Surety is hereto affixed and attested and day ofOctober	iginal term thereof or of ar otice to the Surety, this obli-	ny extension of said gation shall be void,
Brookstone Park	mane Hale	Principal
BY: Cynthia L.	ety and Indemnity Company Mulua X. Jenkins	Attorney-in-Fact

ID-1006 (REV. 1/01)
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CERTIFICATE OF COMPLETION AND COMPLIANCE

To	o: Hamilton County Surveyor
Re	e: Brookstone Park of Carmel, Sec. II
Ιb	ereby certify that:
1.	I am a Registered Land Surveyor or Engineer in the State of Indiana.
2.	I am familiar with the plans and specifications for the above referenced subdivision.
3.	I have personally observed and supervised the completion of the drainage facilities for the above referenced subdivision.
4.	The drainage facilities within the above referenced subdivision to the best of my knowledge, information and belief have been installed and completed in conformity with all plans and specifications.
Sig Ty	pe or Print Name: Jonathan P. Moen. PE
	siness Address: 350 E. New York St. Suite 300
	Indianapolis, IN 46204
Те	lephone Number:317-634-6434
	SEAL INDIANA REGISTRATION NUMBER 10000418 NO. 10000418 STATE OF
iliter	STATE OF STA





Kenton C. Ward, Surveyor Phone (317) 776-8495 Fax (317) 776-9628

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

To: Hamilton County Drainage Board

January 29, 2004

Re: Kingsborough Drain: Brookstone Park of Carmel Sec. 2

Attached are as-builts, certificate of completion & compliance, and other information for Brookstone Park of Carmel Sec. 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 April 23, 2003. The report was approved by the Board at the hearing held May 27, 2003. (See Drainage Board Minutes Book 7, Pages 64-66) The changes are as follows:

Structure:		T.C.:	I.E.:	Pipe:	Length:	Grade:	Original:	Difference:
3	37	903.38	900.67					
	36	903.45	900.5	12	28.28	0.6	28	0.28
	36	903.45	900.45					
	52	903.56	899.45	12	41.74	2.4	43	1.26
5	2	903.56	899.29					
3	35	899.9	895.7	12	348.68	1.03	347	1.68
	26		892.45					
2	25	895.38	892.4	12	134.52	0.04	126	8.52
	25	895.38	892.36					· · · · · · · · · · · · · · · · · · ·
2	4	897.35	892.14	18	28.32	0.78	28	0.32
2	4	897.35	892.13				<u> </u>	
2	23	895.28	892.04	18	109.68	0.08	112	-2.32

6" SSD Streets:

Holden Ct	750
Baldwin Ave	1179

x2

Total:

3108

RCP Pipe Totals:

12 553.22

Total: 544

544

6" SSD

Lots: Block A

	18	138
Total:		691.22

The length of the drain due to the changes described above is now 4343.22 feet.

The non-enforcement was approved by the Board at its meeting on May 27, 2003 and recorded under instrument #200300093802.

The following sureties were guaranteed by Insco Insurance Services, Inc. and released by the Board on its October 13, 2003 meeting.

Bond-LC No: 887707S Insured For: Storm Sewers

Amount: \$39,432.00

Issue Date: October 3, 2003

Bond-LC No: 887708S

Insured For: Erosion Control

Amount: \$20,880.00

Issue Date: October 3, 2003

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

Sincerely,

Kenton C. Ward

Hamilton County Surveyor

KCW/slm

AS-BUILT INFORMATION CONSTRUCTION PLANS FOR

BROOKSTONE PARK OF CARMEL

INDEX

PROFESSION ASSESSMENT SERVICES	INDLA	,	
SHEET NO.	DESCRIPTION		
1	TITLE SHEET		
2	SPECIFICATIONS		
3	SITE DEMOLITION PLAN		* * * * * * * * * * * * * * * * * * * *
4-5	DEVELOPMENT PLAN	2 5 7 4	
6-7	EROSION CONTROL PLAN	: .	
8	EROSION CONTROL DETAILS		b .
9-10	STREET PLAN & PROFILE		· 8
11-12	SANITARY SEWER PLAN & PROFILE	r	
13-14	STORM SEWER PLAN & PROFILE		11,
1,5	ENTRANCE PLAN		•
16-17	INTERSECTION & CUL-DE-SAC DETAILS		
18	TRAFFIC CONTROL PLAN		*
19	TRAFFIC MAINTENANCE PLAN		
20-23A	CONSTRUCTION DETAILS		
24A	WATER LINE PLAN		* T
24B-24C	WATERLINE DETAIL		,

REVISIONS

		REVISIONS	•
SHEET NO.	DATE	DESCRIPTION	
2,11,12,21	07/28/99	PER CLAY TOWNSHIP REGIONAL WASTE DISTRICT	Min The fact they are proportion on the second of the seco
2-4,5,11	09/07/99	PER IDEM OFFICE OF WATER MANAGEMENT	
2	09/14/99	PER IDEM OFFICE OF WATER MANAGEMENT	
1,4-19	09/16/99	REVISED STREET AND LOT LAYOUT PER CLIENT	
ALL	10/08/99	REVISED PER CLIENT & HAMILTON COUNTY HIGHWAY DEPT.	美术名誉
4	10/15/99	REVISED PER CLIENT	
4-19	11/10/99	REVISED PER CLIENT AND SWCD	
2,4-8,13,14,20,21	12/23/99	REVISED PER HAMILTON COUNTY; ADDED SHEET 23A	/
2,5,10	01/18/00	REVISED PER HAMILTON COUNTY HIGHWAY DEPARTMENT	
5	02/17/00	DRAINAGE REVISIONS PER HAMILTON COUNTY	
1,4-7,9,13-16,18,19	03/29/00	REVISED ENTRANCE; REVISED DRAINAGE SOUTH &	
5,13	04/04/00	REVISED STORM SEWER PER CLIENT	
5	05/31/00	REVISED OFF-SITE STORM SEWER	
5,13	07/07/00	REVISED PER STOEPPELWERTH REVISED DRAINAGE REPORT. (06/29/00)	•
3, 4, 5, 6, 7	03/12/01	REVISED PER HAMILTON COUNTY COMMENTS	
1, 4, 6, 9, 11, 12, 24	06/26/02	REVISED WATERLINE LAYOUT PER CITY OF CARMEL COMMENTS	

LAST REVISION DATE: 06-26-02

NOTES:

CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PERMIT ISSUING AGENCIES WITHIN THE TIME FRAME SPECIFIED BY THAT AGENCY PRIOR TO BEGINNING CONSTRUCTION. ANY ALTERATIONS TO THESE PLANS NOT AUTHORIZED BY MID-STATES ENGINEERING AND NOT IN ACCORDANCE WITH THE PLANS AND RECORDS ON FILE AT MID-STATES ENGINEERING OFFICES SHALL RELIEVE MID-STATES ENGINEERING OF RESPONSIBILITY FOR OVERALL ACCURACY OF PLANS.

PLANS PREPARED FOR:

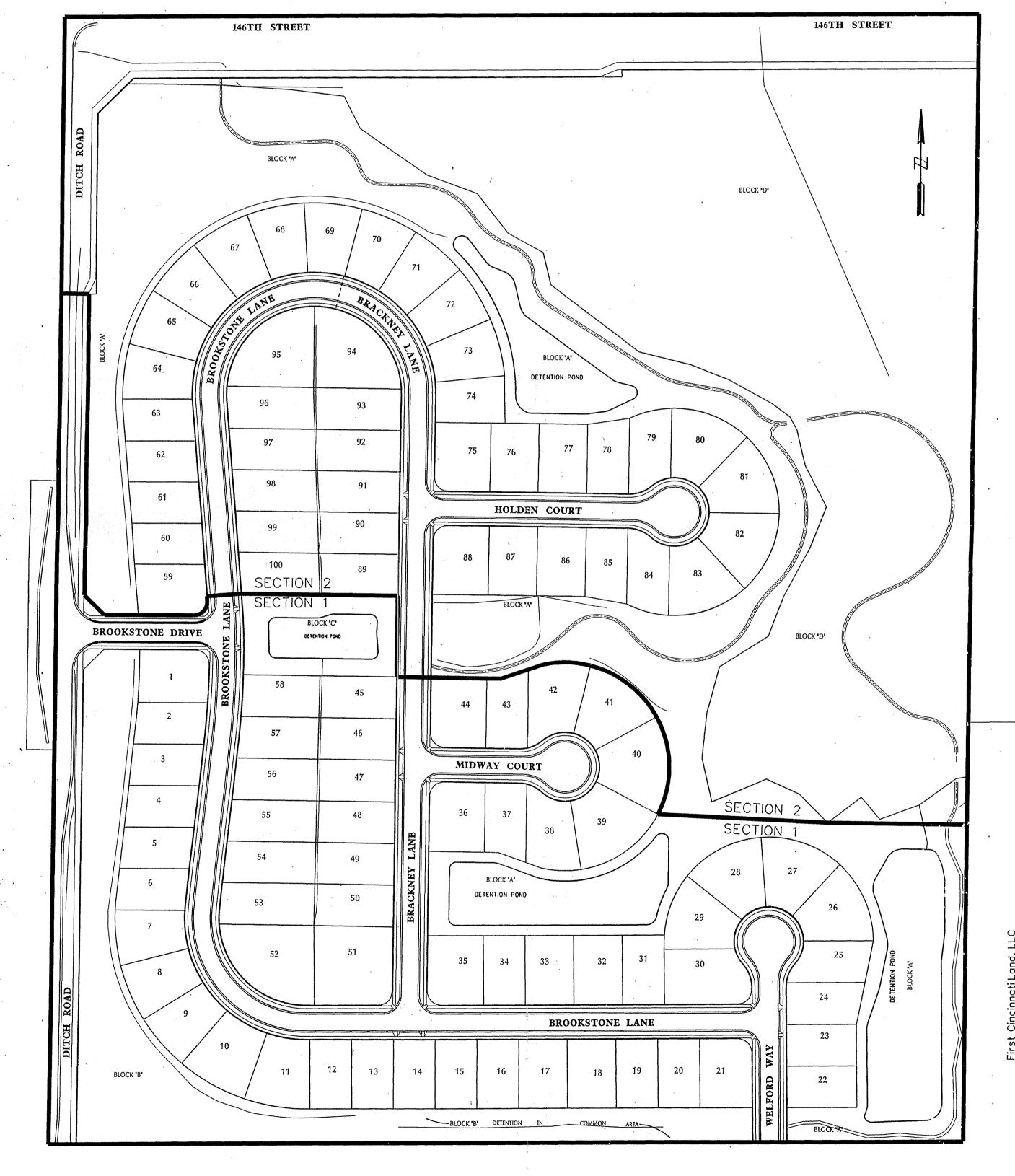


SCM DEVELOPMENT 90 EXECUTIVE DRIVE, SUITE H CARMEL, INDIANA 46032 (317) 814-5400 PHONE (317) 814-5200 FAX

CONTACT: BRUCE FAGAN

INDIANA STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS DATED 1999 TO BE USED WITH THESE PLANS OPEN SPACE PLAN SUBDIVISION

SECTION 22, TOWNSHIP 18 NORTH, RANGE 3 EAST CLAY TOWNSHIP, HAMILTON COUNTY, INDIANA

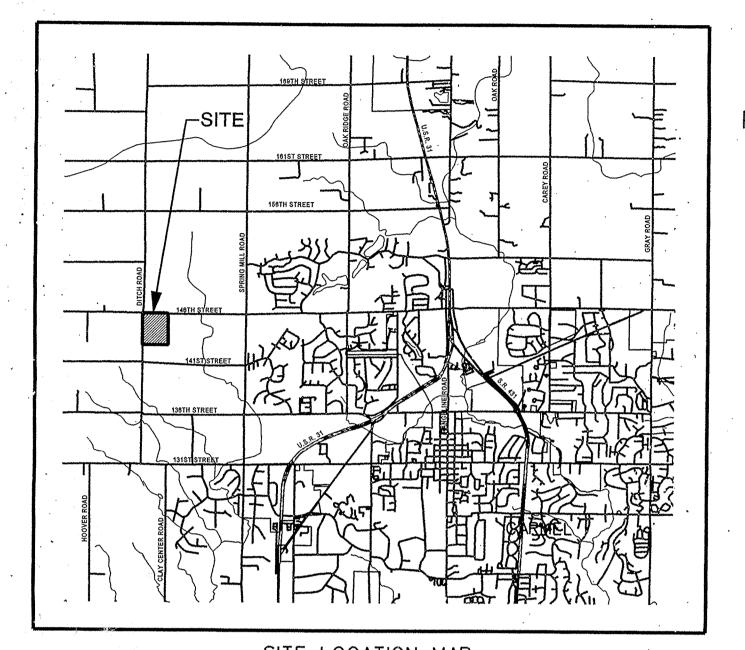


First Cincinnati Land, LLC Inst. *9809844090

PLAT MAP SCALE: 1" - 100'

25 MPH DESIGN SPEED





SITE LOCATION MAP

SITE DA	ATA
TYPICAL LOT SIZE	60' x 100'
SMALLEST LOT	6000 SFt.
LARGEST LOT	12,751 SFt.
TOTAL LOTS	100
TOTAL AREA	49.12 Ac.
UNIT DENSITY	2.04 Units/Acre
TOTAL COMMON AREA	1,020,301 SFt.
ZONING	S-1

UTILITY COMPANIES

WATER

City of Carmel 130 First Ave., SW Carmel, IN 46032 PAUL PACE (317) 571-2648

Indiana Gas Company P.O. Box 1700 Noblesville, IN 46060 MARK RIGGS (317) 776-553

TELEPHONE Ameritech 5858 North College Avenue Indianapolis, IN 46220

ERIC MASON (317) 252-4274

SANITARY SEWER

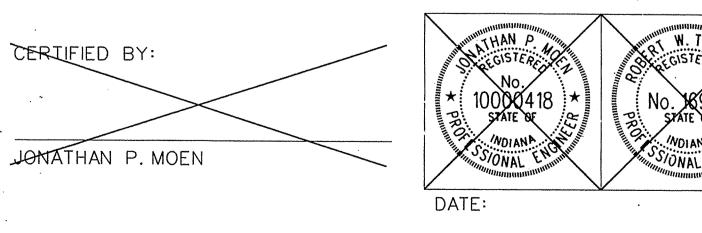
Clay Township Regional Waste District P.O. Box 40638 Indianapolis, IN 46240 JAY ALLEY (317) 844-9200

ELECTRIC

Cinergy/PSIEnergy 1441 S. Guilford Cormel, IN 46032 LARRY CASTETTER (317) 581-3048

CABLE TELEVISION

Insight Communications 15229 Stony Creek Way Noblesville, IN 46060 TONY HOLMES (317) 776-4495

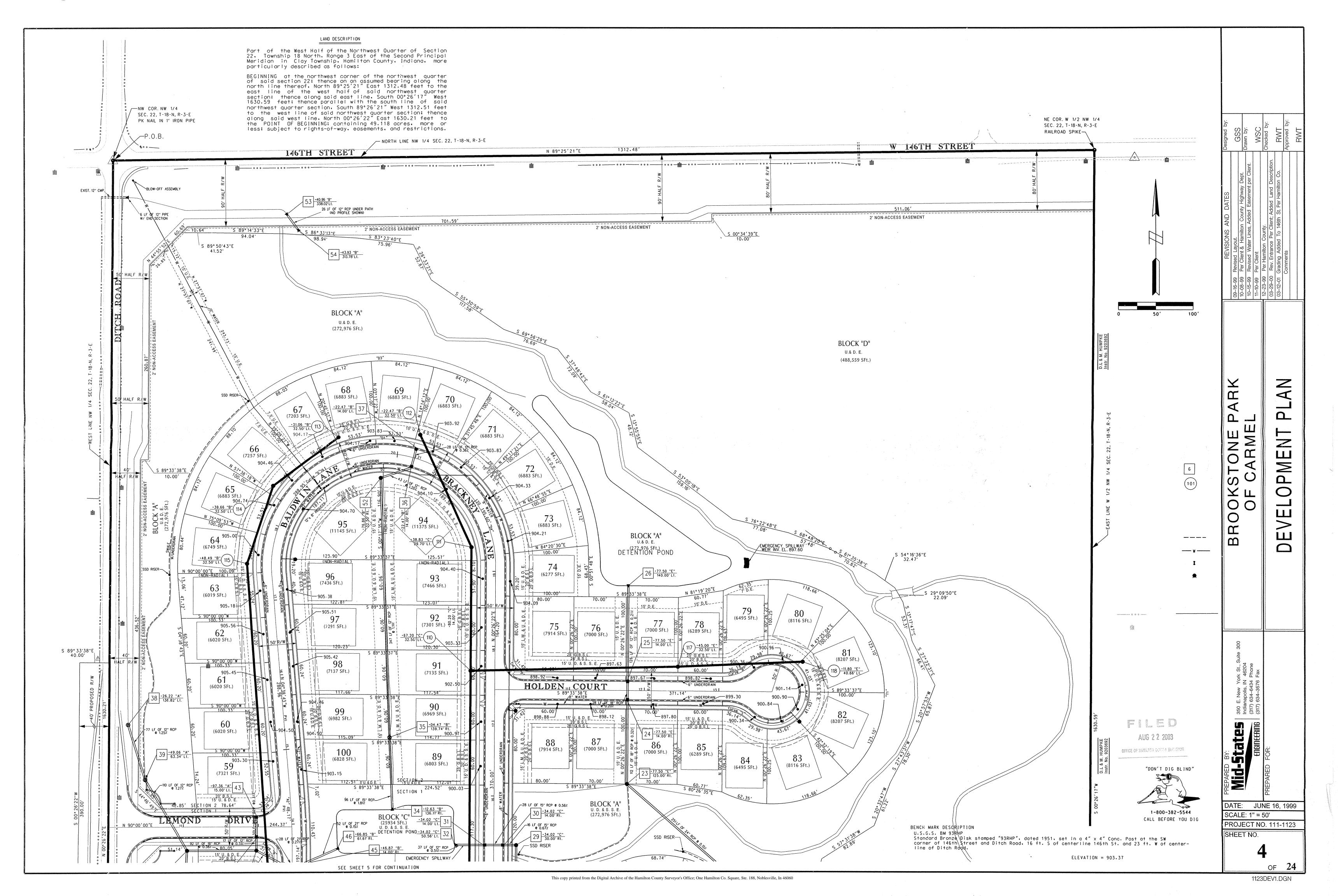


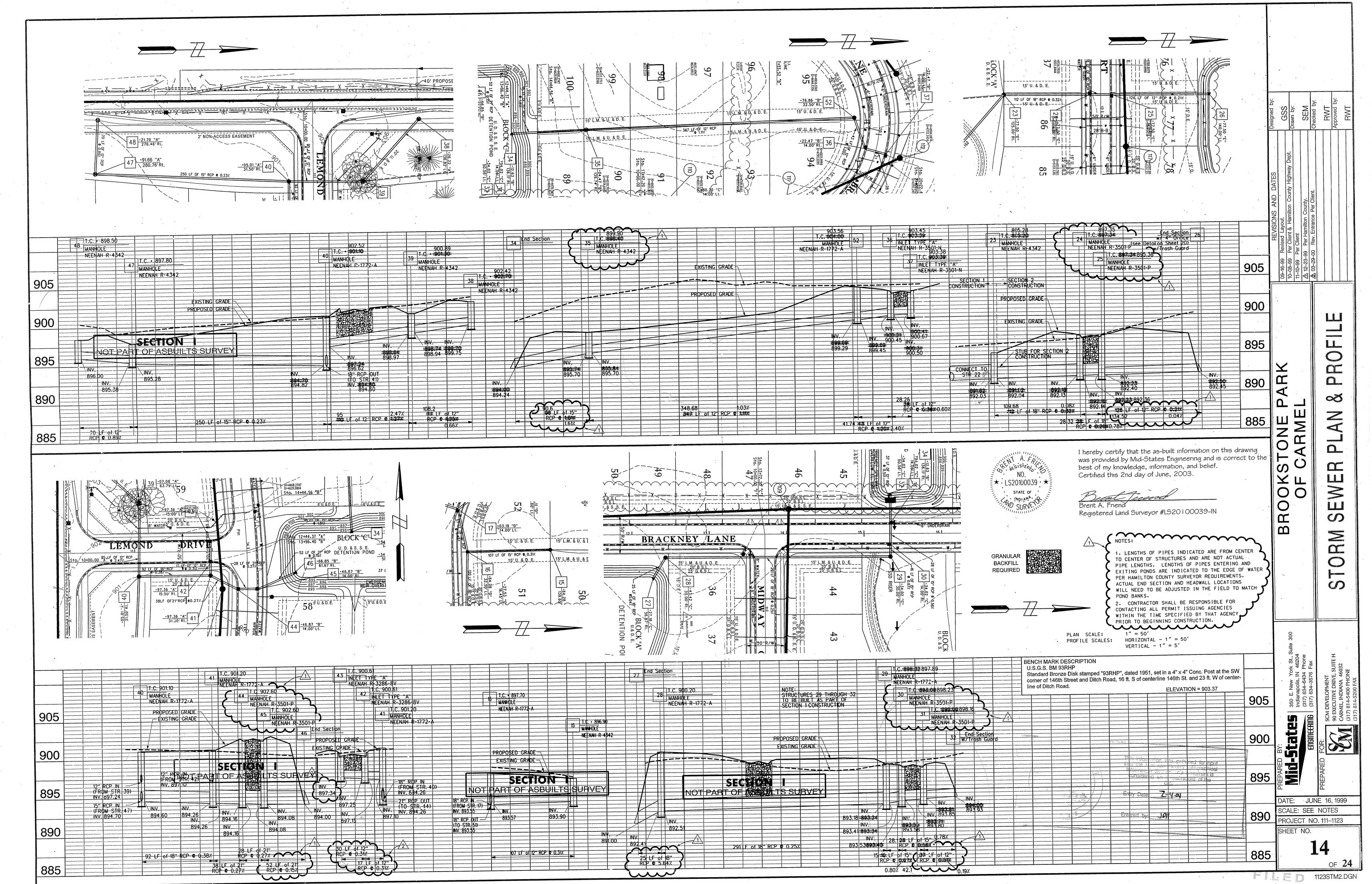
PLANS PREPARED BY:



350 E. New York St., Suite 300 Indianapolis, IN 46204 (317) 634-6434 Phone

JOB NO. 111-1123 SHEET 1 OF 24





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SECTION 01010 - GENERAL CONDITIONS

- The Indiana Department of Transportation (INDOT) Standard Specifications (1999), 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 note that other sections of these Standard Specifications may also be applicable.
- These Specifications in themselves, or when combined with the American institute of Architects (AIA Document A201, latest revision) General Conditions of the Contract for Construction shall be considered as part of the Contract.
- 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 any difficulties which may be encountered in performing the work within the time frame allotted.
- 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 conditions.
- 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 Plans 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.
- The Contractor shall contact INDIANA UNDERGROUND PLANT PROTECTION SERVICE, INC., 1-800-382-5544, and all other 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 at the time of design. 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 amissions found on these Plans or in the field before work is started or resumed. Extra care should be taken where a long time period occurs between design and construction.
- 7. It shall be the Contractor's responsibility for notification and coordination of all construction with respective utility companies.
- The Contractor shall coordinate and confirm with Owner that all permits and approvals are obtained from the respective private, City, County and State agencies prior to starting construction. The Contractor shall be responsible to comply with the conditions set forth within each permit.
- It shall be the responsibility of the 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 Contractor have a qualified supervisor on the job site at all times during
- 10. It is essential that the work to be done in conjunction with this project be installed will be required to certify to certain portions of this project upon completion. Therefore, it is necessary to obtain approval and acceptance by the appropriate governmental agencies that construction was done in compliance with these plans and specifications. Any damaged or defective work will be the Contractor's responsibility to correct or replace. All changes or discrepancies in plans to be reviewed with Engineer prior to implementing changes field.
- Maintain carefully all benchmarks, 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 occurate conformity with dimensions indicated. For construction and aradina 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.
- 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 promptly upon completion.

SECTION 01020 - QUALITY OF YORK

- 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 and materials.
- Contractor shall be solely responsible for quality control of the work and shall maintain auality control over suppliers, manufacturers, products. services, subcontractors, site conditions and workmonship to produce work of specified quality.
- Required testing and inspection are intended to assist in determination of probable compliance 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

- 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.
- 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
- All workmanship shall comply with the Occupational Safety and Health Administration Standards, (OSHA).

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 within the construction
- 2. All debris generated from the clearing operations stated in Item 1 shall be removed and legally disposed of orf the project site; unless a "Bury-Pit", approved by the Owner and Engineer in advance, can be utilized in an location where it shall not be beneath building areas and/or pavement areas and shall not be located in an area where any utility structures are 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 Owner, and all required permits are obtained by the Contractor.
- 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.
- Protection of Existing Improvement: Provide protections necessary to prevent damage to existing improvements indicated to remain in place. a. Protect improvements on adjoining properties and
- on Owner's property. Restore damaged improvements to their original conditions, as acceptable to parties having iurisdiction.
- 6. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, 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 fencing or approved guarding methods 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 organic vegetative matter where required. If site has been recently stripped, the topsoil shall be removed to depth required to remove all roots as required by Soils Engineer, General Contractor, Engineer and Owner.
- Topsoil shall be kept separated from suitable fill materials and shall not be used as fill under pavement and building areas.
- Topsoil shall be stored at a location where it does not interfere with construction operations.
- 4. Topsoil shall be reasonably free from subsoil debris,
- Topsoil shall be spread over all areas to receive seeding and landscaping. Landscaped islands and planting areas shall have a minimum of twelve (12) inches of topsoil and seeded or sodded areas shall have a minimum of six (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

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

- In general, the items of work to be berformed under this finish grading of entire site as indicated on the Plans. section shall include: fill compaction, and rough and building pads, drainage swales, walks, and general cut including subgrade preparation and grading for streets,
- Proof Rolling: Proof rolling shall be performed on all street areas, parking areas, floor slabs. and future building areas subsequent to topsoil stripping and prior to placement of fill materials. Soils Engineer shall direct method of proof rolling. Contractor coordinate proof rolling operations with Soils Engineer.
 Any areas containing soft, yielding or otherwise unsuitable materials shall be undercut or stab lized by approved methods directed by the Soils Engineer Replace unsuitable soil materials on site in the area designated by Engineer and seed as noted. Bury dits which are approved by the Owner and Engineer in advance and which are located in nonstructural fill areas that are not restricted by other easements may be utilized to waste unsuitable soil and unused topsoil. Suitable fill material obtained from the excavation of approved bury pits can be utilized for site fills.
- Fill Material: Fill material shall consist of earth obtained from cut areas, borrow pits or other off-site sources. Earth shall be free from large rocks. vegetable matter, and other deleterious substances. Fill obtained from off-site sources shall be approved by the Owner. The fill material shall be placed in layers not to exceed six (6) inches following compaction. Contractor shall be responsible for aerating wet material and adding water to excessively dry material so that the final moisture content of fill material will be within the range of Optimum Moisture Content from -2.0 percent to +1.0 percent as determined by the standard Proctor moximum dry density test method (AASHTO T-99). All fill beneath paved areas, floor slabs, and future buildings shall be compacted to at least 95% of the standard Proctor maximum dry density (AASHTO T-99).
- Perform earthwork grading and finishing operations to establish required elevations and dimensions as designated on the Plans.
- Place topsoil to minimum depths indicated on the planting plans in each respective area. Place topsoil in layers not to exceed six (6) inches following light compaction, and develop smooth planting surfaces. Subgrade shall be scarified to 3 inches to 6 inches 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. curbs. paving. and adjacent properties, and be free of low spots. Contractor shall be responsible for insuring that surface water drainage swales shown on the plans are uniformly finish graded to the designated minimum slopes
- Settling and Ponding: Where settling and ponding is measurable or observable at excavated areas during the 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.

and elevations

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

- 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 Plans and described in the Specifications, including but not limited to:
- . All streets within the Contract limits Curbs and Gutters Sidewalks
- Construction within Right-of-Way: All street construction within the lines of dedicated right-of-way shall be in accordance with the requirements of the Indiana Department of Transportation (INDOT), latest revision, and the Hamilton County Highway Department.
- Grading: Perform any necessary grading to that accomplished in accordance with SECTION 02220 -EARTHWORK, to bring subgrades, after final compaction, to the required grades and cross-sections for site
- Preparation of Subgrade: Contractor shall perform all top soil stripping operations for street areas pursuant to SECTION 02210 - STRIPPING and shall perform proof rolling and earthwork construction operations pursuant to SECTION 02220 - EARTHWORK and to the requirements stated in section 207 of INDOT, per latest revision.
- Compaction of Subgrade: All roadway areas (including the areas beneath the curbs), regardless of whether they are located in Cut or Fill, shall have the first six (6) inches below the final subgrade elevation compacted to at least 100% of the maximum dry density as determined by the provisions of AASHTO T-99. Water shall be prevented from standing on the compacted subgrade.
- Acceptance of Subgrade: The Earthwork Contractor shall coordinate the preparation of subgrade with the appropriate governmental agency (General Contractor) the Owner, and the Paving Contractor. Subgrade shall be inspected and tested by the General Contractor prior to payement construction. The condition of the subgrade as finally and acceptably prepared shall prevail at the time any paving material is placed thereon.

Prepared subgrade damaged for any reason prior to acceptance by the General Contractor and Paving Contractor shall be repaired by the Earthwork Contractor at no additional cost to Owner. Approved subgrade shall be paved with the initial H.A.C. base course one day after acceptance by the Street Inspector. Approved subgrade damaged for any reason after acceptance by the General Contractor and the Paving Contractor shall be repaired by the Paving Contractor at no additional cost

Should the Paving Contractor refuse acceptance of the subgrade, he shall notify the Earthwork Contractor and the Owner of the deficiencies. Should the Paving Contractor fail to notify the Earthwork Contractor and the Owner of any deficiencies and/or proceed in the placing of the H.A.C. base course, said actions shall constitute acceptance of subgrade.

The Owner shall have the authority to adjust the construction schedules of the Earthwork Contractor and the Paving Contractor as is required to meet the above requirements.

Utility Structures: Earthwork Contractor shall 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 structures. Paving Contractor shall verify the prior to placing pavement materials. Adjustments to utility structures required after placement of paving materials shall be the responsibility of Paving Contractor.

8. Bituminous Payament: All material and communications are posed for the construction of business. pavements shall comply with secti est revision. The front face o coated where H. A. C pavement will b specific approval is granted, paving all not be permitted during unfavorable weather or when the temperature is 40 degrees F. and falling.

> Tack and Prime Coats: If the previously constr course is granular and a prime coat is required, shall conform with applicable provisions of se requirements set ou revision.

Compacted Aggregate B Course: shall conform wi material and construction method requirements set out in section 303 of INDOT, per lotest revision thickness shown on the Plans is the minimum thickness of the fully compacted aggregate base course. Compaction shall be accomplished by folling with a smooth wheeled roller weighing 8 to

100 % of maximum dry density in accordance with MDOT section 304.05, latest revision. Along irbs, 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

Pavements built by stage construction, that is pavements used to corry traffic before the full pavement structure is in place, will have each stage used by traffic inspected by the General Contractor for distressed areas before the next stage is started. Distressed areas will be repaired to the satisfaction of the General Contractor before an additional stage is constructed.

Concrete: Plain concrete pavements shall be constructed in accordance with section 501 of INDOT, latest

Concrete shall be ready-mixed concrete and shall be a mix of proportioned fine and coarse agareagtes 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 mochine 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-

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. Aggregates: Conforming to ASTM C-33. Water: Shall be clear and free from injurious amounts of oils, acids, alkalies, organic materials or other deleterious substances. Welded Steel Wire Fabric: Where required for concrete reinforcement shall conform to ASTM A185.

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 nonextruding or resilient.

15. Placing Concrete: Subgrade: Place concrete only on a moist. compacted subgrade or base free from loose material. Place no concrete on a muddy or frozen subgrade. Refer to SECTION 02220 -

- EARTHWORK and requirements pertaining to subgrade described within this Section. Forms: All forms shall be free from worp, 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 placing concrete.
- 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, section 702.10 of INDOT, latest edition shall be followed.
- Curing Concrete: Except as otherwise specified. cure all concrete by one of the methods described in section 501.17 of INDOT, latest
- Concrete Curb and Gutter: shall conform to requirements set forth in Section 605 of INDOT, latest edition. A. Expansion Joints: Shall be in thick premoulded at ends of all returns and at a
 - maximum spacing of 100 feet. Contraction Joints: Unless otherwise provided, contraction joints shall be sawed joints spaced O feet on center. Finish: Tamp and screed concrete as soon as
 - square corners to 1/4 inch radius and other corners to radii shown. Curing: Concrete curbs shall be cured with white membrane compound according to section 501.17(e) of INDOT, latest edition.

placed, and fill any honeycombed voids. Finish

- Concrete Walks and Exterior Steps: shall conform to section 604 of INDOT, latest revision. Slopes: Provide 1/4 inch per foot minimum cross slope. Make adjustments in slopes at walk intersections as necessary to provide proper
 - Dimensions: Walks and steps shall be one course construction and of widths and details shown on he plans.
 - 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 15 feet between expansion joints. Wheel chair ramps shall be provided as detailed.
- Street and Other Signs: Street name signs to be purchased and installed at the Developer's expense according to Hamilton County Standard Plans S-2. All regulatory signs, in accordance with Hamilton County Standard Plans S-1, S-3, shall be purchased at the Developer's expense and delivered to the Hamilton County Highway Department for installation after the acceptance of streets.

SECTION 02710 - UTILITIES

Contractor to verify all exist

be reported to a operations sh ompany. They shall be

ns governing the respective utilities

under pavement areas except for utilities which are bored or pushed under street. induit shall be required for all crossings under payement areas. Contractor shall coordinate with each respective utility for their location and installation. Conduit shall be 4" PVC Schedule 40 or approved equal.

Granular backfill thall be required for all crossings

Existing storm sewers, sanitary sewers, water mains, gas mains, electric ducts, telephone ducts, steam mains and other underground structures 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 outhorities 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

revision.

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 Plans.

Standard Specifications of the Hamilton County Surveyor and Indiana Department of Transportation Standard Specifications (INDOT), latest edition, shall apply for all work and materials.

Pipe shall be installed in accordance with Section 715 of INDOT. All trench excavations deeper than five (5) feet are covered by OSHA Standard 29CIR 1926 Subpart P. 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 of

INDOT. Joints shall conform to ASTM C-433, latest

Subdrainage system shall be installed as shown on Plans and be of pipes designated in Section 906 of INDOT as Pipes to be installed for subsurface drainage only may

be one of the following: Perforated corrugated drainage pipe in occordance with AASHTO M252 or AASHTO M294. PVC shall have minimum cell classification conforming to requirement of 12454-C ASTM D-

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: ABS or PVC composite in accordance with ASTM D-

- PVC in accordance with ASTM D-3034 SDR-35. PVC corrugated with smooth interior in accordance with ASTM F949.
- Backfill around all structures and cuts under paved areas and within five (5) feet of pavement edges with granular material in accordance with Section 211 of INDOT. See standard detail sheet for construction dimensions of
- storm structures. Manholes, inlets and catch basins shall be in accordance with Section 720 of INDOT. Precast concrete and steel for manholes and inlets shall be in accordance with ASTM C-478, latest revision. Steps shall be ductile iron or aluminum integrally cast into each catch basin sidewalls.
- The Contractor shall provide a minimum of two (2) foot of earth cover over all storm sewers. If pipe is to have construction traffic over it. Contractor shall provide a minimum temporary earth cover of four (4) feet, until construction period is complete. After completion of operations requiring construction traffic over pipe, Contractor shall remove the temporary earth cover and grade the earth to elevations shown on the Plans.
- Rip-rap particles shall be a minimum of 7" and a maximum of 17" in size and shall be placed a minimum of 18" in depth. Dimensions for rip-rap on this plan are for estimating purposes only. Actual best placement of ri rap shall be determined by field conditions and sha in accordance with Section 616 of INDOT.
- All drainage pipe and ditch outfalls to receiving stre shall be constructed in accordance with drawings, subject however, to any modification required by Engineer at the time of installation, and to any adjustments peopled for field conditions not adequately anticipated by the design drawings.

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. Install gaskets in accordance with manufacturer's

recommendations for use of lubricants, cements, and

istings shall be as shown on detail sheet for

other special installation requirements. Place plugs in ends of incomplete piping at end of work day or whenever work stops, and at stubs for future

Carry depth of traches for piping to establish indicated flow of the provide solid bearing for piping to establish indicated flow of the provide solid bearing for piping to establish indicated flow of the provide solid bearing for piping to establish indicated flow of pipe pipe in open tracked.

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It is also of work. the local authority gives written permission for

unneling. Open the treach sufficiently ahead of pipelaying to reveal an obstructions. The width of the trench shall be the outside pipe diameter plus nine (9) inches even side for 12 inches above the pipe or 0.3 x O.D. whichever is greater. Sheet and brace trench as necessary to protect workmen and adjacent structures. All trenching is to comply with Occupational Safety and Health Administration standards. Contractor shall employ a Registered Professional Engineer to design trench safety systems for all trenches over twenty (20) feet in depth. 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 natural drainage channels.

All pipes on steep slopes (over 20%) shall have concrete anchors at maximum 40 feet intervals as shown on detail.

- 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 material which may contain stones or rocks not larger than four (4) inches Backfill under walks, parking areas, driveways, and streets shall be granular material only and shall be thoroughly compacted by approved methods to the density specified. Trenches parallel with and within five (5) feet of paved roadways shall be constructed the same. All granular backfill shall be compacted to 95% Standard Proctor maximum dry density.
- 17. Manhole inverts: Construct manhole flow channels of concrete, sewer pipe, smoothly finished and of semicircular 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 SEWER CONSTRUCTION

accordance with Section 715.

TYPICAL SANITARY SEWER SPECIFICATIONS TO BE USED FOR PRIVATE SEWER DEVELOPMENT CLAY TOWNSHIP REGIONAL WASTE DISTRICT

REVISED SEPTEMBER, 1999 Standard specifications of the Clay Waste District and the Indiana Department of Highways shall apply for all work and materials. Pipe shall be installed in

Sanitary sewer pipe shall be PVC in accordance with ASTM D-3034 (S.D.R. 35) and ASTM 2321. PVC pipe shall have grooved bell and gasket. The pipe shall be made of PVC plastic having a cell classification of 12454B.

PVC sewer fittings shall conform to the requirements of ASTM D-3034-89 specification. Fittings in sizes through 8" shall be molded in one piece with elastomeric joints and minimum socket depths as specified in Sections 6.2 and 7.3.2. Fittings 10" and larger shall be molded or fabricated in accordance with section 7.11 with manufacturers standard pipe bells and gaskets. Wal thickness of fittings shall be SDR 26 as defined in Section 7.4.1 of the specifications. Gaskets for elastomeric joints shall be molded with a minimum crosssectional area of 0.20 square inches and conform to ASTM F-477 specification. Fittings shall be manufactured by Harce or equal.

All sanitary manholes shall be "precast concrete" manholes in accordance with ASTM C-478 and Section 720. O-Rinds shall conform to C-443. Kent Seal or equivalent shall also be applied to all joints and between riser rings and castings. Manhole step spacing shall be no more than 16 inches. Manholes shall be air tested for leakage in accordance with ASTM C1244-93, Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

- A. Installation and operation of vacuum equipment and indicating devices must be in accordance with manufacturer's recommendations and performance specifications which have been provided by the manufacturer and accepted by the Engineer.
- With the vacuum tester set in place: 1. Inflate the compression band to forty (40) psi to effect a seal between the vacuum base and the structure.
- 2. Connect the vacuum pump to the outlet part with the valve open. 3. Draw a vacuum of ten (10) inches of Hg. And close the valve.
- Accepted standards for leakage will be established from the elapsed time for a negative pressure change from ten (10) inches to nine (9) inches of mercury. The maximum allowable leakage rate for a four (4) foot diameter manhale must be in accordance with the following:

Minimum Elapsed Time for a Pressure Change of 1 Inch Hg

60 seconds >10 feet but <15 feet 75 seconds >15 feet but <25 feet 90 seconds

For manholes five (5) feet in diameter, add an additional fifteen (15) seconds and for manholes six (6) feet in diameter, add an additional thirty (30) seconds to the time requirements for four (4) foot diameter manholes. For all manholes deeper than twenty-five (25) feet. Engineer will determine the applicable minimum elapsed time.

- If the manhole fails the test, necessary repairs must be made and the vacuum test and repairs must be repeated until the manhole passes the test. If manhale joint sealants are pulled out during the vacuum test, the manhale must be disassembles
- and the joint sealants replaced. Manholes will be subject to visual inspection with all visual leaks being repaired Butyl rubber coating shall be applied around each manhole

joint from 6-inches above to 6-inches below each joint.

The appropriate primer shall be applied prior to applying

the rubber coating. Inside joints to be filled with precoat plug material. 6. The manhole chimneys, including all riser rings, shall be sealed using Infi-Shield "Uniband" or approved equal. Prior to placement, the top 4-inches of the monhole cone and casting frame shall be cleaned and primed. The Unibond shall extend from 3 inches below the top of the

cone section to 2-inches over the flange of the manhole

- The costing 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. New manhole ring and cover shall be installed to establish grade. Maximum height of adjusting rings shall be 12-inches.
- Backfill around all structures and all cuts under payed areas with granular material. Trenches opening within 5 feet of paved roadways shall be backfilled with granular material in accordance with Section 211. Backfill under sidewalks shall be granular, unless the walks are constructed a minimum of 6 months after backfill has been
- 9. The Contractor shall be responsible for verifying that all state highway, city, and county permits have been obtained by the developer prior to start of construction.
- The Contractor shall be required to furnish the developer's Engineer with a set of prints, marked in red pencil, showing actual sewer location and invert, to include lateral location, depth and length. Such "asbuilt" 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.
- 11. All sanitary sewer lines upon completion will be required to pass a low pressure air test. Said test shall be conducted according to ASTM 1417-92, and shall be witnessed by an Engineer and a representative of the Clav Waste District. The testing shall be in accordance with
- 12. Deflection tests shall be performed on all flexible* pipe ofter the final backfill has been in place at least 30 days. No pipe shall exceed a vertical deflection of 5% deflection test results. (*The following are considered non-flexible pipes: concrete pipe, ductile iron pipe, and cost iron pipe). The deflection test shall be performed with a nine-point mondrel. Proving rings shall be available.
- 13. All mandrel testing shall be observed by a Professional Engineer for certification and a representative of the Clay Waste District.
- 14. The ends of laterals are to be plugged tight with a braced plastic disc or cap capable of withstanding a low pressure air test without leakage.
- 15. Bedding for flexible pipe shull be No. 8 crushed stone from 6-inches below the pipe to 12-inches above the pipe. Bedding for rigid pipe shall be No. 8 crushed stone from 6-inches below the pipe to the spring line of the pipe and from this point to 12-inches above shall be fill sand or equivalent. Manholes shall be placed on no less than 6-inches of No. 8 crushed stone bedding.
- Water and sewer line crossings and separations shall be in accordance with Ten States' Standards.
- Trench shall be opened sufficiently ahead of pipe laying to reveal obstructions, and shall be properly protected and/or barricaded when left unattended.

No water shall be permitted to flow into the sanitary sewer system during construction. Contractor shall utilize a pump to keep water level below the pipe. Pump discharge shall be directed to a storm outlet. Any pipe entering existing sewers shall be plugged with screw type mechanical, braced plug until such time as all tests on the sewers have been completed and the lines have passed

All sewer laterals installed by the main line Contractor

20. Forty-eight (48) hours notice shall be given to the Clay Regional Waste District prior to the start of sewer to any testing done in the sewer.

stamped "SANITARY SEWER".

Regional Waste District are :

Minimum Constructed Slope 10-inch 12-inch 0.15% 15-inch 18-inch

The Contractor shall provide measurements of the slope of the sewer for each manhole section as construction site for observation by the District's Inspector. No advance of such measurements.

slopes, the sewer section and any other affected sewer sections shall be reconstructed to meet such minimum

shall be bedded the same as the main line sewer. construction. Also, 48 hours notice shall be given prior

Manhole castings shall be stamped "SANITARY SEWER". (Neenah casting R-1642, or equal) and be self-sealing type. Waterproof castings shall be Neenah R-1916-F1 and

The minimum slope for sewer acceptance by Clay Township

progresses. Such measurements shall be certified by a Registered Land Surveyor or Engineer and be available onmore than three manhole sections can be constructed in

In the event the Contractor does not meet the minimum

Mid-State DATE: JUNE 16, 1999

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