

**SOUTH DAKOTA BOARD OF REGENTS**

**Budget and Finance**  
**Consent**

**AGENDA ITEM: 5 – K**  
**DATE: October 4-5, 2023**

\*\*\*\*\*

**SUBJECT**

**Trojan Village LLC Easement Resolution (DSU)**

**CONTROLLING STATUTE, RULE, OR POLICY**

SDCL [5-2-10](#) & [5-2-11](#).

**BACKGROUND / DISCUSSION**

Trojan Village LLC is seeking an easement for two storm sewer drainage pipes across a portion of land occupied by Dakota State University (DSU) in Lake County. The locations of the drainage pipes do not unnecessarily interfere with DSU’s use of the land and the drainage was previously contemplated and planned for during a drainage study conducted for DSU’s adjacent sites.

**IMPACT AND RECOMMENDATION**

DSU requests that the Board of Regents adopt the Resolution set forth in Attachment I requesting the grant of easements to Trojan Village LLC to erect, construct, reconstruct, replace, repair, use, maintain and operate two storm sewer drainage pipes, together with all necessary and appurtenant incidental structures and appliances necessary for the operation and maintenance of such storm sewer drainage pipes. The foregoing will allow Trojan Village LLC to locate and/or maintain a portion of its storm sewer drainage pipes on a portion of BOR’s property to properly account for drainage on its site and not cause undue impact to the surrounding watershed areas.

Staff recommends approval.

**ATTACHMENTS**

- Attachment I – Resolution Requesting the Grant of an Easement to Trojan Village LLC.
- Attachment I, Exhibit I – Draft Easement to Trojan Village LLC.

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**DRAFT MOTION 20231004\_5-K:**

I move to approve and adopt the Resolution set forth in Attachment I, requesting the Commissioner of School and Public Lands to proceed with the easements as stated therein.

## RESOLUTION

### **Resolution requesting the grant of an easement through, under, in, on and across portions of land occupied by the Dakota State University for the use and benefit of Trojan Village, LLC.**

The South Dakota Board of Regents (hereinafter referred to as “Grantor”), on behalf of Dakota State University, in consideration of one dollar (\$1.00) and other good and valuable consideration, and pursuant to the authority vested in Grantor under SDCL § 5-2-11, hereby requests the Commission of School and Public Lands to draw up all necessary documents and to forward them to the Governor to request their execution in order to ratify, effectuate, or grant to Trojan Village, LLC, an easement to erect, construct, reconstruct, replace, repair, use, maintain, and operate two storm sewer drainage pipes, together with all necessary and appurtenant incidental structure and appliances necessary for the operation and maintenance of such storm sewer drainage pipes through, under, in, on, and across the following legally described real estate within Lake County:

A strip of land twenty-five (25) feet in width, consisting of twelve and one-half (12.5) feet on either side of the center of the storm sewer drainage pipe as constructed, and one hundred and fifty (150) feet in length, situated in Lots Two (2) and (3) of Block One (1) of DSU Foundation Addition to the City of Madison, Lake County, South Dakota, and

A strip of land twenty-five (25) feet in width, consisting of twelve and one-half (12.5) feet on either side of the center of the storm sewer drainage pipe as constructed, and 42 feet in length, situated on Lot Three (3) of Block One (1) of DSU Foundation Addition to the City of Madison, Lake County, South Dakota,

as further shown in Exhibit “A” to Exhibit I, a copy of which is attached hereto and incorporated into this agreement, the same as if written at length herein.

Grantor requests that any ratification, effectuation, or grant of easement be consistent with, or responsive to, the issues identified in the draft grant of easement prepared by the Office of School and Public Lands and attached hereto as Exhibit I, without restricting the ability of the parties to further revise, negotiate, and finalize the details of the final document(s).

Grantor requests that any ratification, effectuation, or grant or easement provides that the Grantor shall not be liable for any personal injury, property damage, or other liability to Grantee, its agents, employees, invitees, or to any other party cause by or related to Grantee’s use of the premises, irrespective of how such injury or damage may be cause, whether by action of the elements or acts of negligence of Grantee or any other party, and that Grantee further agree to reimburse Grantor for any judgment against it arising from Grantee’s use of the property.

Dated this \_\_\_\_\_ day of October, 2023.

SOUTH DAKOTA BOARD OF REGENTS

By: \_\_\_\_\_  
Tim Rave  
President

**Certification**

I have compared the foregoing with an action taken by the Board of Regents at a regular meeting of the Board on the \_\_\_\_\_ day of October, 2023, and I hereby certify that the same is a true, correct, and complete copy thereof and that the same has not been rescinded.

Dated this \_\_\_\_\_ day of October, 2023

SOUTH DAKOTA BOARD OF REGENTS

By: \_\_\_\_\_  
Douglas Morrison  
Secretary

**This document prepared by:  
Office of School and Public Lands  
(605)773-3303  
500 East Capitol Avenue  
Pierre, South Dakota 57501-5070**

**STATE OF SOUTH DAKOTA  
PERMANENT EASEMENT**

THIS EASEMENT is made and entered by and between the State of South Dakota acting through its Governor and Commissioner of School and Public Lands on behalf of the South Dakota Board of Regents, 500 East Capitol, Pierre, South Dakota, 57501 [the "Grantor"] and between Trojan Village, LLC, Lake County, South Dakota (the "Grantee").

WHEREAS Grantee is desirous of acquiring a permanent easement, as depicted in Exhibit A attached hereto, for the purpose of constructing and maintaining two storm sewer drainage pipes and related facilities above and below the surface of the proposed easement area upon land belonging to the Grantor, and the Grantor is desirous of cooperating with Grantee for said easement.

NOW THEREFORE THE PARTIES MUTUALLY AGREE AS FOLLOWS:

1. For and in consideration of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged and other valuable consideration set forth in this Easement, the Grantor hereby grants and conveys to Grantee a permanent easement for the following described purposes: the right to erect, construct, reconstruct, replace, repair, use, maintain, and operate two storm sewer drainage pipes, together with all necessary and appurtenant incidental structures and appliances necessary for the operation and maintenance of such drainage pipes through, under, in, on and across the following legally described real estate within the County of Lake, State of South Dakota (the "Easement Area"):

A strip of land twenty-five (25) feet in width, consisting of twelve and one-half (12.5) feet on either side of the center of the storm sewer drainage pipe as constructed, and one hundred and fifty (150) feet in length, situated in Lots Two (2) and (3) of Block One (1) of DSU

Foundation Addition to the City of Madison, Lake County, South Dakota, and

A strip of land twenty-five (25) feet in width, consisting of twelve and one-half (12.5) feet on either side of the center of the storm sewer drainage pipe as constructed, and 42 feet in length, situated on Lot Three (3) of Block One (1) of DSU Foundation Addition to the City of Madison, Lake County, South Dakota,

as further shown in Exhibit A, a copy of which is attached hereto and incorporated into this agreement, the same as if written at length herein.

2. This Easement is granted subject to all existing rights of way and easements over and upon the property including the reservation by the Grantor to continue use of any existing utilities, access, or Grantor infrastructure. Existing utilities, access, or infrastructure may be relocated with Grantor permission at Grantee's expense.

3. Grantee agrees that any construction will not interfere unnecessarily with the Grantor's use of its adjoining property and will not endanger or injure any improvements thereon. Grantor reserves the right to utilize the Property for all purposes not inconsistent with the easement rights herein conveyed. Grantor or Grantee may enter upon the above described property for the purposes of effectuating the grant of and reserved rights in this easement.

4. The right of way, utilities, or other infrastructure shall be constructed in a good and workmanlike manner and all disturbed areas shall be restored to a finished grade.

5. Grantee further agrees, at no cost to the Grantor, to be responsible for the operation, repair, maintenance, replacement, or removal of the two storm sewer drainage pipes by Grantee and associated with the operation and maintenance of said drainage pipes.

6. Grantee further understands and agrees, that to the extent provided by South Dakota law it shall be liable for all damages caused by the construction, operation, maintenance, enlargement, upgrade, repair, alteration, removal or replacement of two storm sewer drainage pipes installed by Grantee and associated with the operation and maintenance of said drainage pipes and Grantee agrees to indemnify, defend, and hold the State harmless for the same. This section is not, as to third parties, a waiver of any defense or immunity otherwise available to Grantee. The Grantee may require contractors and permittees to defend, indemnify, and hold the Grantee whole and harmless from costs, liabilities, maintenance, repair, operation or construction, or permitted facilities by such contractor or permittee in or near

the Easement. Nothing in this agreement shall be read to waive Grantor's sovereign immunity.

7. The property which is the subject of this Easement shall be kept free of all obstructions including but not limited to buildings, walls, fences, debris, trees, shrubs, or landscaping if such use is incompatible with the Easement.

8. Should the above-described real property granted by this Easement cease to be used for the purpose stated herein for two (2) consecutive years, this Easement reverts to the Grantor or its successor or assigns.

9. Grantor has and retains the right to lease, sell or otherwise convey the Easement Area, or any part thereof, subject to the terms of this Easement, provided, however, that this Easement shall remain in full force and effect until the expiration of the term hereof notwithstanding such lease, sale or conveyance. This Easement is also subject to a reservation of rights relating to deposits of coal, ores, metal and other minerals, asphaltum, oil, gas and like substances provided South Dakota Constitution Art. VIII, §19, South Dakota Codified Laws 5-7-3 to 5-7-6, inclusive and South Dakota Codified Laws 5-2-12, and in any law of the State of South Dakota reserving any rights of any kind in said State or any of its departments, institutions, subdivisions, funds or accounts.

10. This agreement and attachments shall constitute the entire agreement between Grantor and Grantee. This agreement supersedes any other written or oral agreements between Grantor and Grantee. This agreement can only be modified in writing and signed by the Grantor and Grantee or their respective heirs, representatives, executors, administrators, successors, and assigns.

11. This easement shall be binding upon the heirs, executors, administrators, assigns, and successors in interest of the parties hereto, and the failure of Grantee or any person or entity succeeding to its interest to comply with the conditions stated herein shall cause the easement to terminate and to revert to Grantor or any person or entity succeeding to its interest.

12. This Easement is governed by and shall be construed in accordance with the laws of the State of South Dakota. Any lawsuit pertaining to or affecting this Agreement shall be venued in Circuit Court, Sixth Judicial Circuit, Hughes County, South Dakota

IN WITNESS WHEREOF, the STATE OF SOUTH DAKOTA has caused this Instrument to be executed in the name of the State, by the Governor and

attested to by the Commissioner of School and Public Lands and the Grantee has set its hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

STATE OF SOUTH DAKOTA

BY: \_\_\_\_\_  
Kristi Noem  
Governor

ATTEST:

\_\_\_\_\_  
Brock L Greenfield  
Commissioner of School and Public Lands

TROJAN VILLAGE, LLC.

BY: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTEST:

\_\_\_\_\_  
\_\_\_\_\_

**ACKNOWLEDGMENTS**

STATE OF SOUTH DAKOTA    )  
  ) ss  
COUNTY OF HUGHES        )

On this \_\_\_ day of \_\_\_\_\_, 2023, before me the undersigned Notary Public within aforesaid County and State, personally appeared Kristi Noem, Governor, known to me to be the person described herein who executed the within and forging instrument for the purposes therein contained and acknowledged to me that he executed the same.

Notary Seal

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Commission Expires

STATE OF SOUTH DAKOTA )  
  ) ss  
COUNTY OF HUGHES       )

On this \_\_\_\_ day of \_\_\_\_\_, 2023, before me the undersigned Notary Public within aforesaid County and State, personally appeared Brock L. Greenfield, Commissioner of South Dakota School and Public Lands, known to me to be the person described herein who executed the within and forgoing instrument for the purposes therein contained and acknowledged to me that he executed the same.

Notary Seal

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Commission Expires

STATE OF SOUTH DAKOTA )  
  ) ss  
COUNTY OF \_\_\_\_\_  )

On this \_\_\_\_ day of \_\_\_\_\_, 2023, before me, the undersigned officer, personally appeared \_\_\_\_\_, who acknowledged him/herself to be the \_\_\_\_\_ of Trojan Village, LLC, and that s/he, as \_\_\_\_\_, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of Trojan Village LLC, as \_\_\_\_\_.

Notary Seal

\_\_\_\_\_  
Notary Public

\_\_\_\_\_



Commission Expires

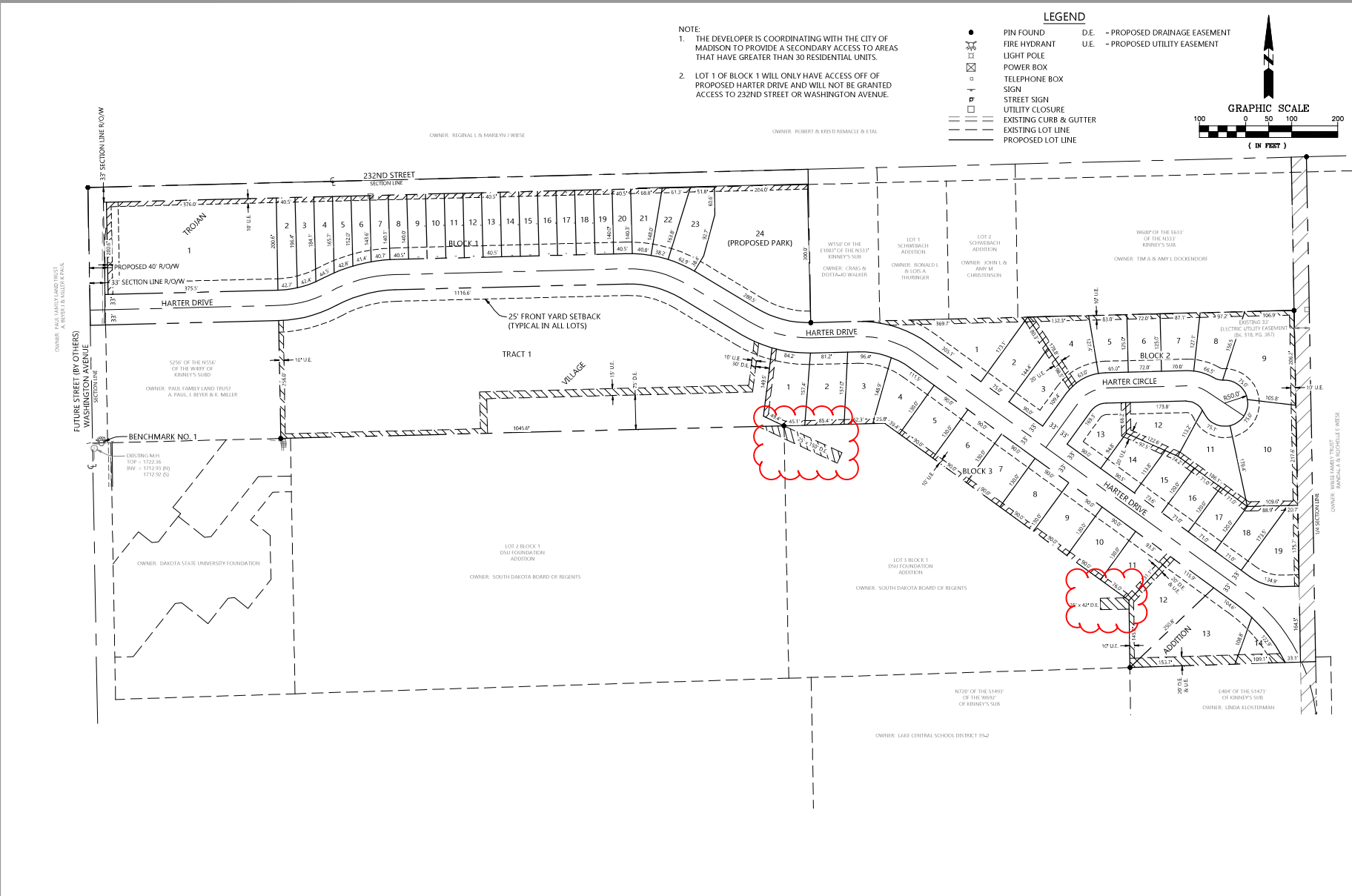
STATE OF SOUTH DAKOTA )  
 ) ss  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_ day of \_\_\_\_\_, 2023, before me the undersigned Notary Public within aforesaid County and State, personally appeared \_\_\_\_\_, known to me to be the person described herein who executed the within and forgoing instrument for the purposes therein contained and acknowledged to me that he executed the same.

Notary Seal

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Commission Expires

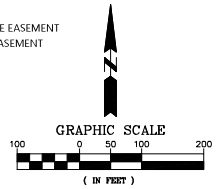


NOTE:  
 1. THE DEVELOPER IS COORDINATING WITH THE CITY OF MADISON TO PROVIDE A SECONDARY ACCESS TO AREAS THAT HAVE GREATER THAN 30 RESIDENTIAL UNITS.  
 2. LOT 1 OF BLOCK 1 WILL ONLY HAVE ACCESS OFF OF PROPOSED HARTER DRIVE AND WILL NOT BE GRANTED ACCESS TO 232ND STREET OR WASHINGTON AVENUE.

**LEGEND**

- PIN FOUND
- FIRE HYDRANT
- LIGHT POLE
- POWER BOX
- TELEPHONE BOX
- SIGN
- STREET SIGN
- UTILITY CLOSURE
- EXISTING CURB & GUTTER
- EXISTING LOT LINE
- PROPOSED LOT LINE

D.E. - PROPOSED DRAINAGE EASEMENT  
 U.E. - PROPOSED UTILITY EASEMENT



**BENCHMARK NO. 1.**  
 TOP NUT OF HYDRANT  
 S. 556± OF THE INTERSECTION OF  
 232ND ST. & WASHINGTON AVE.  
 ELEV. = 1724.47 (88 DATUM)

**BENCHMARK NOTE:**  
 THE ELEVATION BASIS OF THIS SURVEY IS BASED ON GPS OBSERVATION OF THE TRIMBLE VIRTUAL REFERENCE STATION (VRS) SYSTEM AND IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

Engineering Solutions

**Sayre Associates**  
 2105 S. Duluth Avenue, Suite 100, P.O. Box 574  
 Phone: (608) 332-7211 Fax: (608) 332-7222

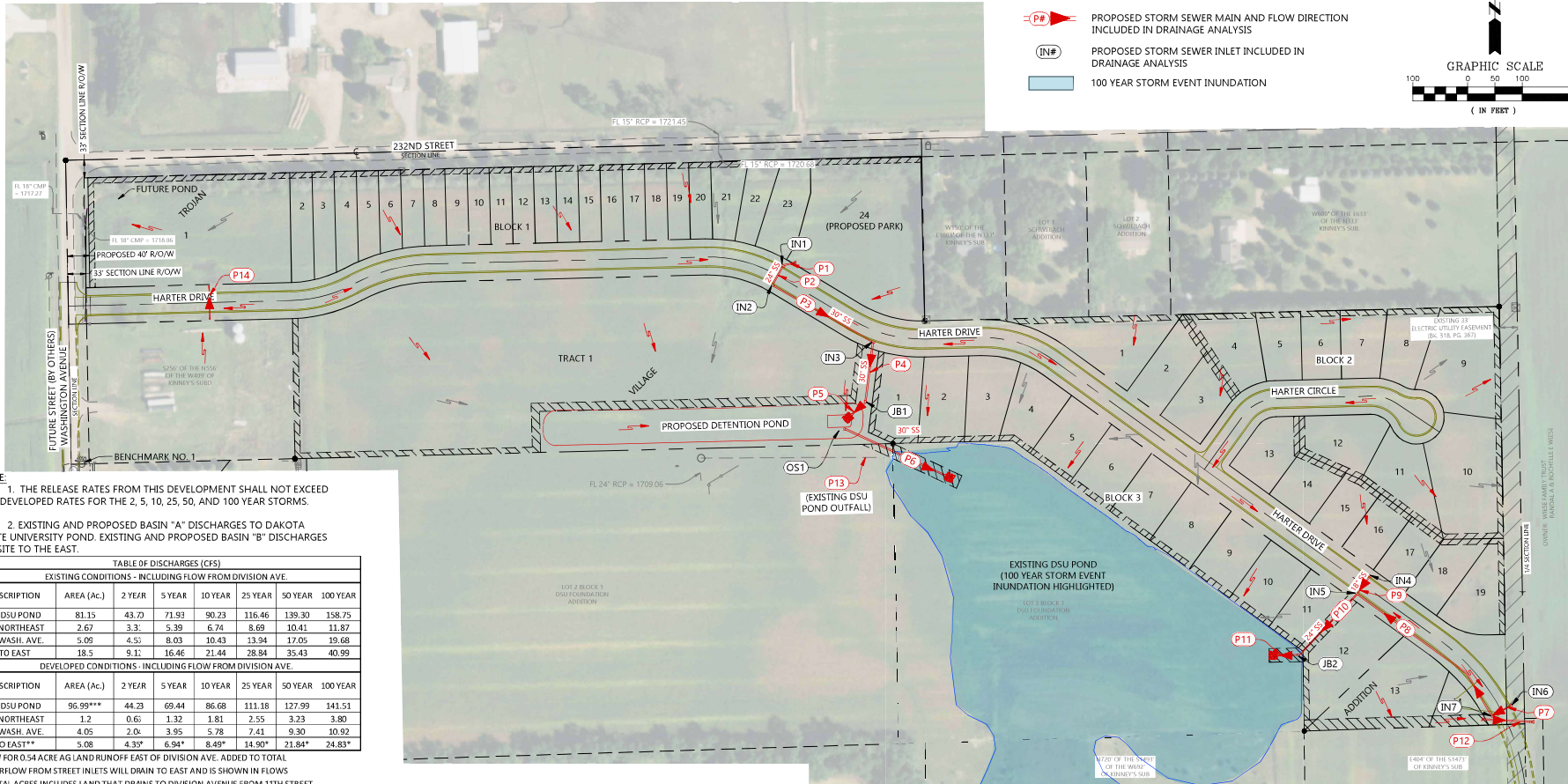
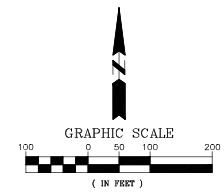
ATTACHMENT 1, EXHIBIT 1  
 TROJAN VILLAGE ADDITION  
 TROJAN VILLAGE, LLC.  
 SEC. 5 - T108N - R52W  
 MADISON, LAKE COUNTY, SOUTH DAKOTA

PROJECT NO.:	2310
SURVEYED BY:	JHC
CREATED BY:	BJB
APPROVED BY:	JHC
REVISION DATE:	
LOT LAYOUT PLAN EXHIBIT:	

A

**LEGEND**

- EXISTING DRAINAGE SUBAREA BOUNDARY
- PROPOSED DRAINAGE SUBAREA BOUNDARY
- ▶ PROPOSED STORM SEWER MAIN AND FLOW DIRECTION INCLUDED IN DRAINAGE ANALYSIS
- IN# PROPOSED STORM SEWER INLET INCLUDED IN DRAINAGE ANALYSIS
- 100 YEAR STORM EVENT INUNDATION



- NOTE:**
1. THE RELEASE RATES FROM THIS DEVELOPMENT SHALL NOT EXCEED PRE-DEVELOPED RATES FOR THE 2, 5, 10, 25, 50, AND 100 YEAR STORMS.
  2. EXISTING AND PROPOSED BASIN "A" DISCHARGES TO DAKOTA STATE UNIVERSITY POND. EXISTING AND PROPOSED BASIN "B" DISCHARGES OFFSITE TO THE EAST.

TABLE OF DISCHARGES (CFS)							
EXISTING CONDITIONS - INCLUDING FLOW FROM DIVISION AVE.							
DESCRIPTION	AREA (AC.)	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
TO DSU POND	81.15	43.73	71.93	90.23	116.46	139.30	158.75
TO NORTHEAST	2.67	3.3	5.39	6.74	8.69	10.41	11.87
TO WASH. AVE.	5.09	4.52	8.03	10.43	13.94	17.05	19.68
TO EAST	18.5	9.1	16.46	21.44	28.84	35.43	40.99
DEVELOPED CONDITIONS - INCLUDING FLOW FROM DIVISION AVE.							
DESCRIPTION	AREA (AC.)	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
TO DSU POND	96.99***	44.23	69.44	86.68	111.18	127.99	141.51
TO NORTHEAST	1.2	0.61	1.32	1.81	2.55	3.23	3.80
TO WASH. AVE.	4.05	2.04	3.95	5.78	7.41	9.30	10.92
TO EAST**	5.08	4.35*	6.94*	8.49*	14.90*	21.84*	24.83*

\*FLOW FOR 0.54 ACRE AG LAND RUNOFF EAST OF DIVISION AVE. ADDED TO TOTAL  
 \*\*OVERFLOW FROM STREET INLETS WILL DRAIN TO EAST AND IS SHOWN IN FLOWS  
 \*\*\*TOTAL ACRES INCLUDES LAND THAT DRAINS TO DIVISION AVENUE FROM 11TH STREET

TABLE OF PROPOSED TROJAN VILLAGE POND DATA							
EVENT	EXISTING PEAK FLOW (CFS)	EXISTING RUNOFF VOLUME (AC.-FT)	DEVELOPED PEAK FLOW INTO POND (CFS)	DEVELOPED RUNOFF VOLUME (AC.-FT)	DEVELOPED PEAK FLOW OUT OF POND (CFS)	HWL	MAX STORAGE VOLUME (AC.-FT)
2 YEAR	21.48	3.100	27.28	3.338	11.57	1711.04	0.517
5 YEAR	36.41	5.170	40.36	5.223	13.83	1711.95	0.938
10 YEAR	46.09	5.708	47.64	6.474	14.89	1712.44	1.290
25 YEAR	60.13	8.634	57.34	8.285	23.22	1712.81	1.512
50 YEAR	72.45	10.475	64.64	10.641	31.05	1712.96	1.615
100 YEAR	82.75	12.049	70.39	11.288	42.31	1713.05	1.683

TABLE OF EXISTING DSU POND DATA - w/0.600in/hr EXFILTRATION							
EVENT	EXISTING PEAK FLOW (CFS)	EXISTING RUNOFF VOLUME (AC.-FT)	DEVELOPED PEAK FLOW INTO POND (CFS)	DEVELOPED RUNOFF VOLUME (AC.-FT)	DEVELOPED PEAK FLOW OUT OF POND (CFS)	MAX HWL	MAX STORAGE VOLUME (AC.-FT)
2 YEAR	43.70	6.707	44.23	8.105	1.75	1707.05	6.210
5 YEAR	71.93	10.826	69.44	12.512	2.13	1708.30	10.684
10 YEAR	90.23	13.565	86.68	16.087	2.33	1709.08	13.623
25 YEAR	116.46	17.574	111.18	20.445	2.56	1710.06	17.724
50 YEAR	139.3	11.25	127.99	24.137	2.73	1710.85	22.005
100 YEAR	158.75	14.160	141.51	26.844	2.85	1711.35	26.413

**SUMMARY OF PROPOSED STORM SEWER INLETS**

- |   |   |  |
|---|---|--|
| <p><b>D.I. NO. 1 (SF-10)</b><br/>                 TOP = 1717.36<br/>                 INV. = 1713.61 (NE)<br/>                 INV. = 1713.51 (SW)</p> | <p><b>D.I. NO. 5 (SF-6)</b><br/>                 TOP = 1715.94<br/>                 INV. = 1711.56 (NE)<br/>                 INV. = 1709.24 (SE)<br/>                 INV. = 1709.14 (SW)</p> | <p><b>J.B. NO. 2 (4' x 4')</b><br/>                 TOP = 1712.80<br/>                 INV. = 1708.23 (NE)<br/>                 INV. = 1708.22 (W)<br/>                 INV. = 1709.14 (SW)</p>    |
| <p><b>D.I. NO. 2 (SF-6)</b><br/>                 TOP = 1717.36<br/>                 INV. = 1713.04 (NE)<br/>                 INV. = 1713.04 (SE)</p>  | <p><b>D.I. NO. 6 (FUTURE)</b><br/>                 TOP = 1714.50<br/>                 INV. = 1711.28 (SW)</p>   | <p><b>OUTLET STRUCTURE NO. 1 (3' x 4')</b><br/>                 TOP = 1712.50<br/>                 INV. = 1708.67<br/>                 INV. = 1707.50<br/>                 INV. = 1707.32 (SE)</p> |
| <p><b>D.I. NO. 3 (SF-6)</b><br/>                 TOP = 1721.29<br/>                 INV. = 1712.00 (NW)<br/>                 INV. = 1711.90 (SW)</p>  | <p><b>D.I. NO. 7 (FUTURE)</b><br/>                 TOP = 1714.50<br/>                 INV. = 1711.00 (NE)<br/>                 INV. = 1710.90 (NW)</p>  |  |
| <p><b>D.I. NO. 4 (SF-6)</b><br/>                 TOP = 1715.94<br/>                 INV. = 1711.93 (SW)</p>   | <p><b>J.B. NO. 1 (4' x 4')</b><br/>                 TOP = 1714.00<br/>                 INV. = 1708.60 (N)<br/>                 INV. = 1708.50 (SW)</p>  |  |

TABLE OF EXISTING DRAINAGESUB-AREA PEAK RUNOFF									
* = DESIGN DATA FROM STOCKWELL DESIGN REPORT									
LABEL	AREA (Ac.)	CN	Tc (Min)	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
EA1*	18.90	79.74	35	13.59	22.85	29.02	38.04	45.85	52.60
EB1	24.78	79.13	30	18.95	32.31	41.11	54.04	65.41	74.92
EB2*	14.22	83.50	15	20.48	32.03	39.52	50.21	59.43	67.22
EB3*	23.25	81.00	61	12.34	20.43	25.85	33.53	40.32	46.11
EC1	2.67	81.00	15	3.32	5.39	6.75	8.72	10.43	11.67
FD1	2.23	81.00	15	2.76	4.51	5.65	7.30	8.73	9.93
ED2	8.72	76.50	40	4.13	8.17	10.63	14.31	17.56	20.31
EE1	7.55	75.60	40	3.15	6.71	8.80	11.93	14.68	17.08
EF1	5.09	76.00	15	4.13	8.05	10.44	13.96	17.08	19.73

TABLE OF PROPOSED DRAINAGESUB-AREA PEAK RUNOFF									
* = DESIGN DATA FROM STOCKWELL DESIGN REPORT									
LABEL	AREA (Ac.)	CN	Tc (Min)	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
PA1*	18.90	79.74	35	13.59	22.85	29.02	38.04	45.85	52.60
PB1	9.11	75.51	15	7.84	14.05	18.36	24.53	30.09	34.82
PB2	0.92	85.04	15	2.25	3.65	4.54	4.23	4.81	5.13
PB3	0.32	80.20	15	0.38	0.62	0.78	1.02	1.22	1.19
PB4	7.44	92.00	15	16.21	22.74	26.77	32.46	37.27	41.28
PB5	5.27	78.01	15	5.41	9.25	11.81	15.56	18.85	21.64
PB6	1.52	80.20	15	1.78	2.93	3.69	4.78	5.75	6.16
PB7	2.91	72.00	15	1.58	3.69	4.93	6.82	8.51	9.97
PB8*	14.22	83.50	15	20.48	32.03	39.52	50.21	59.43	67.22
PB9*	23.25	81.00	61	12.34	20.43	25.85	33.52	40.32	46.11
PB10	0.18	91.80	15	0.40	0.56	0.66	0.79	0.91	1.00
PB11	0.25	98.00	15	0.66	0.87	1.00	1.13	1.34	1.47
PB12	5.75	75.00	40	2.65	4.94	6.53	8.87	10.96	12.78
PB13	6.95	77.30	40	3.85	6.81	8.80	11.78	14.37	16.62
FC1	1.20	70.00	15	0.63	1.33	1.81	2.56	3.23	3.40
FD1	0.35	70.00	15	0.19	0.39	0.53	0.75	0.95	1.12
PD2	2.87	81.00	15	3.57	5.79	7.25	9.37	11.21	12.75
PD3	1.77	78.30	15	0.92	1.72	2.30	3.14	3.89	4.14
PD4	0.59	81.00	15	0.73	1.19	1.49	1.92	2.30	2.42
PF1	3.25	71.32	15	1.96	3.92	5.29	7.35	9.22	10.83
PP2	0.82	69.00	15	0.38	0.82	1.14	1.63	2.07	2.46

TABLE OF PROPOSED TROIAN VILLAGE POND DATA							
EVENT	EXISTING PEAK FLOW (CFS)	EXISTING RUNOFF VOLUME (AC-FT)	DEVELOPED PEAK FLOW INTO POND (C/S)	DEVELOPED RUNOFF VOLUME (AC-FT)	DEVELOPED PEAK FLOW OUT OF POND (CFS)	HWL	MAX STORAGE VOLUME (AC-FT)
2 YEAR	21.43	3.100	27.28	27.28	3.338	1711.04	0.517
5 YEAR	36.41	5.170	40.36	5.223	13.83	1711.95	0.938
10 YEAR	46.09	5.708	47.64	6.474	14.89	1712.44	1.260
25 YEAR	60.13	8.634	57.34	8.285	23.22	1712.81	1.512
50 YEAR	72.45	10.475	64.64	10.641	31.05	1712.96	1.615
100 YEAR	82.76	12.049	70.39	11.288	42.31	1713.05	1.683

TABLE OF EXISTING DSU POND DATA - w/1600 in/hr INFILTRATION							
EVENT	EXISTING PEAK FLOW (CFS)	EXISTING RUNOFF VOLUME (AC-FT)	DEVELOPED PEAK FLOW INTO POND (C/S)	DEVELOPED RUNOFF VOLUME (AC-FT)	DEVELOPED PEAK FLOW OUT OF POND (CFS)	MAX HWL	MAX STORAGE VOLUME (AC-FT)
2 YEAR	43.70	6.707	44.23	8.105	1.75	1707.05	6.210
5 YEAR	71.93	10.826	69.44	12.912	2.13	1708.30	10.684
10 YEAR	90.23	13.565	86.68	16.087	2.33	1709.08	13.623
25 YEAR	116.46	17.574	111.18	20.445	2.56	1710.06	17.724
50 YEAR	139.3	21.125	127.99	24.137	2.73	1710.85	22.005
100 YEAR	158.75	24.160	141.51	26.844	2.85	1711.35	26.413

TABLE OF STORM SEWER PIPE DATA						
5 YEAR - 24 HOUR PERFORMANCE						
LABEL	SIZE / TYPE	LENGTH (FT)	SLOPE (1/FT)	"N"	Qp (cfs)	FULL FLOW CAPACITY (cfs)
P1	24" RCP	24	0.0200	0.13	8.66	31.99
P2	24" RCP	39	0.0100	0.13	16.34	22.62
P3	30" RCP	207	0.0090	0.13	18.78	9.00
P4	30" RCP	110	0.0300	0.13	19.28	71.04
P5	30" RCP	40	0.0100	0.13	19.11	41.02
P6	30" RCP	210	0.0075	0.13	13.80	29.86
P7	18" RCP	39	0.0075	0.13	6.25	3.10
P8	24" RCP	332	0.0063	0.13	11.71	-4.27
P9	18" RCP	39	0.0100	0.13	9.24	-0.50
P10	24" RCP	154	0.0060	0.13	16.06	-7.52
P11	24" RCP	35	0.0060	0.13	16.06	-7.52
P12	24" ARCH RCP	88	0.0030	0.13	4.47	-2.55
P13	12" RCP	330	0.0020	0.13	2.12	1.38
P14	12" RCP	60	0.0040	0.13	0.14	1.95
100 YEAR - 24 HOUR PERFORMANCE						
LABEL	SIZE / TYPE	LENGTH (FT)	SLOPE (1/FT)	"N"	Qp (cfs)	FULL FLOW CAPACITY (cfs)
P12	24" ARCH RCP	88	0.0030	0.13	4.47	-2.55
P13	12" RCP	330	0.0020	0.13	2.84	1.38

TABLE OF 35U POND STAGED STORAGE		
DESIGN DATA FROM STOCKWELL ENGINEERS DESIGN REPORT		
DEPTH (FT.)	AREA (SQ. FT.)	CUMULATIVE VOLUME (CU. FT.)
0 (1705)	118,400	0
1	131,490	124,945
2	144,770	263,075
3	158,250	414,485
4	171,255	578,387
5	185,885	758,207
6	203,880	953,090
7	290,170	1,200,115
8 (1713)	443,662	1,567,031

TABLE OF STORM SEWER INLETS						
5 YEAR - 24 HOUR PERFORMANCE						
LABEL	TYPE	Opeak (cfs)	INTERCEPT (cfs)	BYPASS (cfs)	SPEED (FT)	DEPTH (FT)
IN1	SF 6	14.02	NA	NA	29.24	0.84
IN2	SF 6	3.05	NA	NA	13.34	0.52
IN3	SF 6	0.62	0.62	0.00	4.73	0.18
IN4	SF 6	9.25	NA	NA	29.77	0.85
IN5	SF 6	2.93	NA	NA	12.99	0.51
IN6	SF 6	5.19	NA	NA	23.16	0.71
IN7	SF 6	7.61	NA	NA	19.04	0.63

TABLE OF PEAK DISCHARGES (CFS)							
EXISTING CONDITIONS - INCLUDING FLOW FROM DIVISION AVE.							
DESCRIPTION	AREA (AC.)	1 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
TO DSUPOND	81.15	43.70	71.93	90.23	116.46	139.30	158.75
TO NORTHEAST	2.67	3.31	5.39	6.74	8.69	10.41	11.87
TO WASH AVE.	5.09	4.53	8.69	10.43	11.94	17.06	19.68
TO EAST	18.5	9.12	16.46	21.44	26.84	35.43	40.99
DEVELOPED CONDITIONS - INCLUDING FLOW FROM DIVISION AVE.							
DESCRIPTION	AREA (AC.)	1 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
TO DSUPOND	86.99***	44.23	69.44	86.68	111.18	137.99	161.51
TO NORTHEAST	1.2	0.63	1.32	1.81	2.55	3.23	3.80
TO WASH AVE.	4.05	2.04	3.95	5.78	7.41	9.30	10.92
TO EAST**	5.08	4.35*	6.94*	8.49*	14.90*	21.84*	24.83*

\*FLOW F01 0.59 ACRE AG LAND RUNOFF EAST OF DIVISION AVE. ADDED TO TOTAL  
 \*\*OVERFLOW FROM STREET INLETS WILL DRAIN TO EAST AND IS SHOWN IN FLOWS  
 \*\*\*TOTAL ACRES INCLUDES LAND THAT DRAINS TO DIVISION AVENUE FROM 11TH STREET

TABLE OF DISCHARGES VOLUMES (AC-FT) TO THE EAST OF DIVISION							
EXISTING BASINS - ED1, ED2, EE1 PROPOSED BASINS - PD1, PD2, PD3, PB10, PB11, PB2, PB13							
	AREA (AC.)	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
EXISTING	18.50	1.20	2.04	2.61	4.15	4.22	4.87
BASEIN EE1 ONLY	7.55	0.46	0.80	1.03	1.37	1.68	1.94
PROPOSED	17.63	0.32	0.53	0.68	1.07	1.50	1.87