

**LEGEND**

LIMIT OF DISTURBANCE	---
LIMIT OF WORK	---
CONCRETE SIDEWALK	---
STANDARD DUTY ASPHALT PAVEMENT	---
HEAVY DUTY CONCRETE PAVEMENT	---
STONE	---
STORM SEWER	---
STORM MANHOLE	---
YARD INLET	---
CURB INLET	---
STORM DRAIN STRUCTURE	---
TRENCH DRAIN	---

**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	CHECKED BY
1	01/20/2025	REV. PER CITY'S COMMENTS	AD BK
2	03/24/2025	REV. PER CITY'S COMMENTS	JC AD
3	04/22/2025	REV. PER CITY'S COMMENTS	AD BK

**811**  
Know what's below.  
Call before you dig.  
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PROJECT No.: MDA230090.00  
DRAWN BY: AD BK  
DATE: 07/19/2024  
CAD ID: P-CIVL-GRAD

**SCHEMATIC DEVELOPMENT SITE PLAN**  
FOR  
**THE AUTO SPA EXPRESS**  
PROPOSED DEVELOPMENT  
10099 FIELDS ROAD  
GAITHERSBURG, MD 20878  
CITY OF GAITHERSBURG  
PARCEL C, BLOCK A,  
WASHINGTONIAN CENTER

**BOHLER**  
9711 WASHINGTONIAN BLVD, SUITE 400  
GAITHERSBURG, MARYLAND 20878  
Phone: (301) 809-4500  
Fax: (301) 809-4501  
MD@Bohler.com

**M. J. BIRKLAND**  
04/22/25  
PROFESSIONAL ENGINEER  
PROFESSIONAL CERTIFICATION  
I, MICHAEL J. BIRKLAND, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 34261, EXPIRATION DATE 05/14/2025

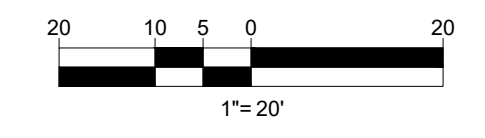
SHEET TITLE:  
**PRELIMINARY STORM DRAIN AND PAVING PLAN**

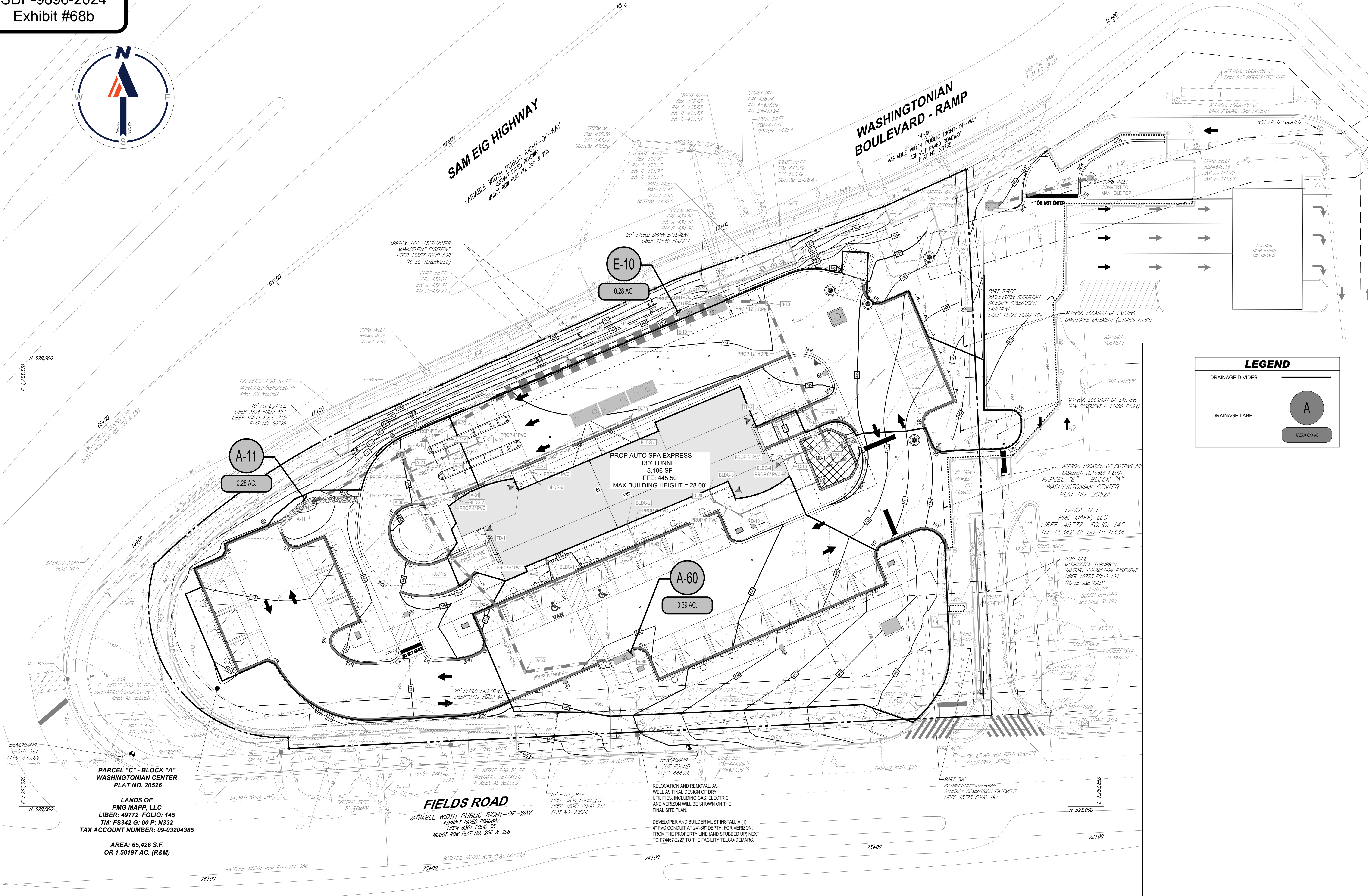
SHEET NUMBER:  
**10**

REVISION 3 - 04/22/2025

APR 21, 2025 11:02:23 MDA230090.00 CAD DRAWINGS PLAN SET SCHEMATIC DEVELOPMENT SITE PLAN CIVIL GRAD MDA230090.00-10-LAYOUT: 10 - SDP

GENERAL NOTE:  
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**LEGEND**

--- DRAINAGE DIVIDES

○ A DRAINAGE LABEL

○ AREA XXXX

**BOHLER**

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TRANSPORTATION SERVICES

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PROJECT No.: MDA230909.00  
DRAWN BY: AD  
CHECKED BY: BK  
DATE: 07/19/2024  
CAD ID: P-CIVL-GRAD

**SCHEMATIC DEVELOPMENT SITE PLAN**

FOR

**THE AUTO SPA EXPRESS**

PROPOSED DEVELOPMENT

10099 FIELDS ROAD  
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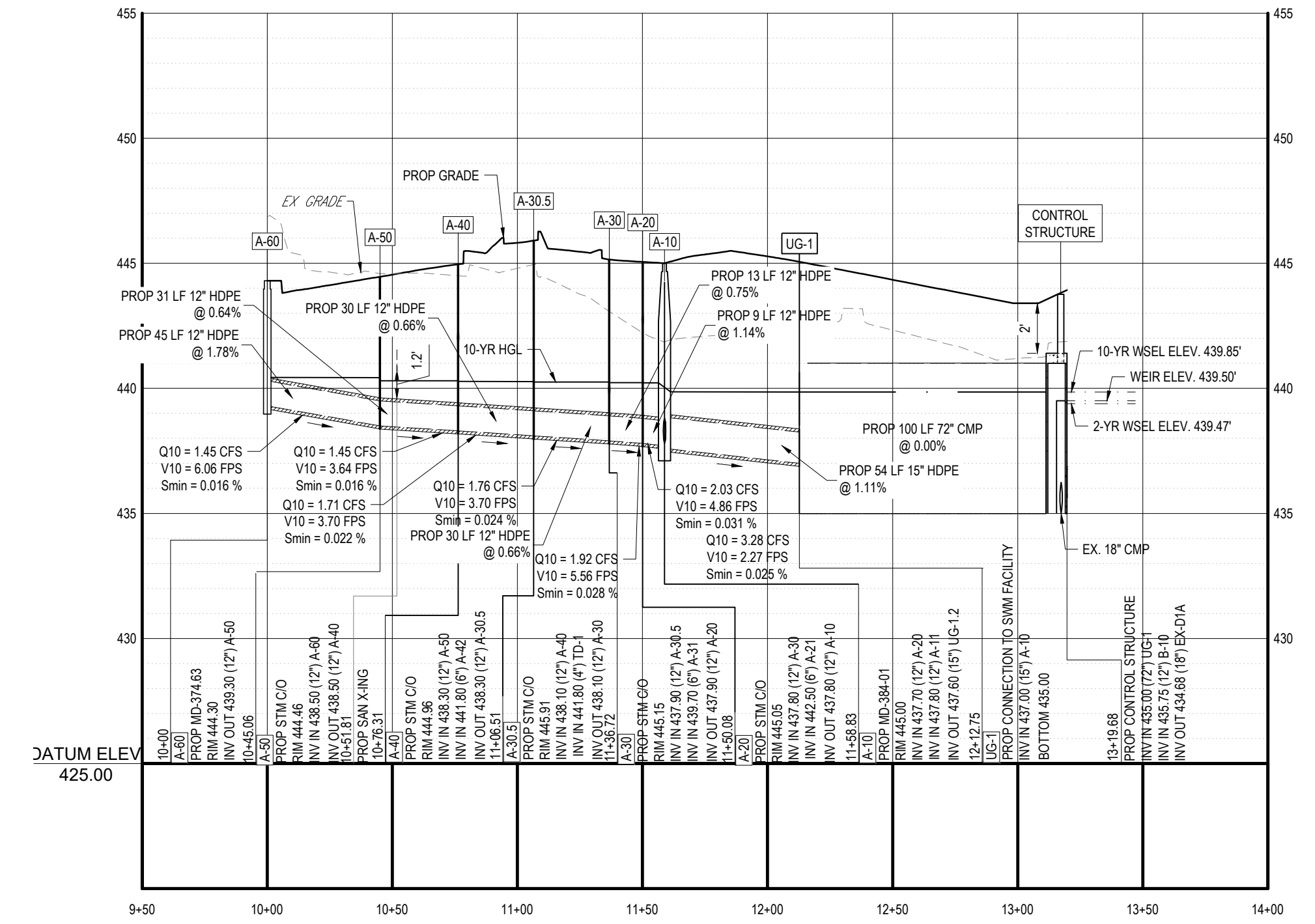
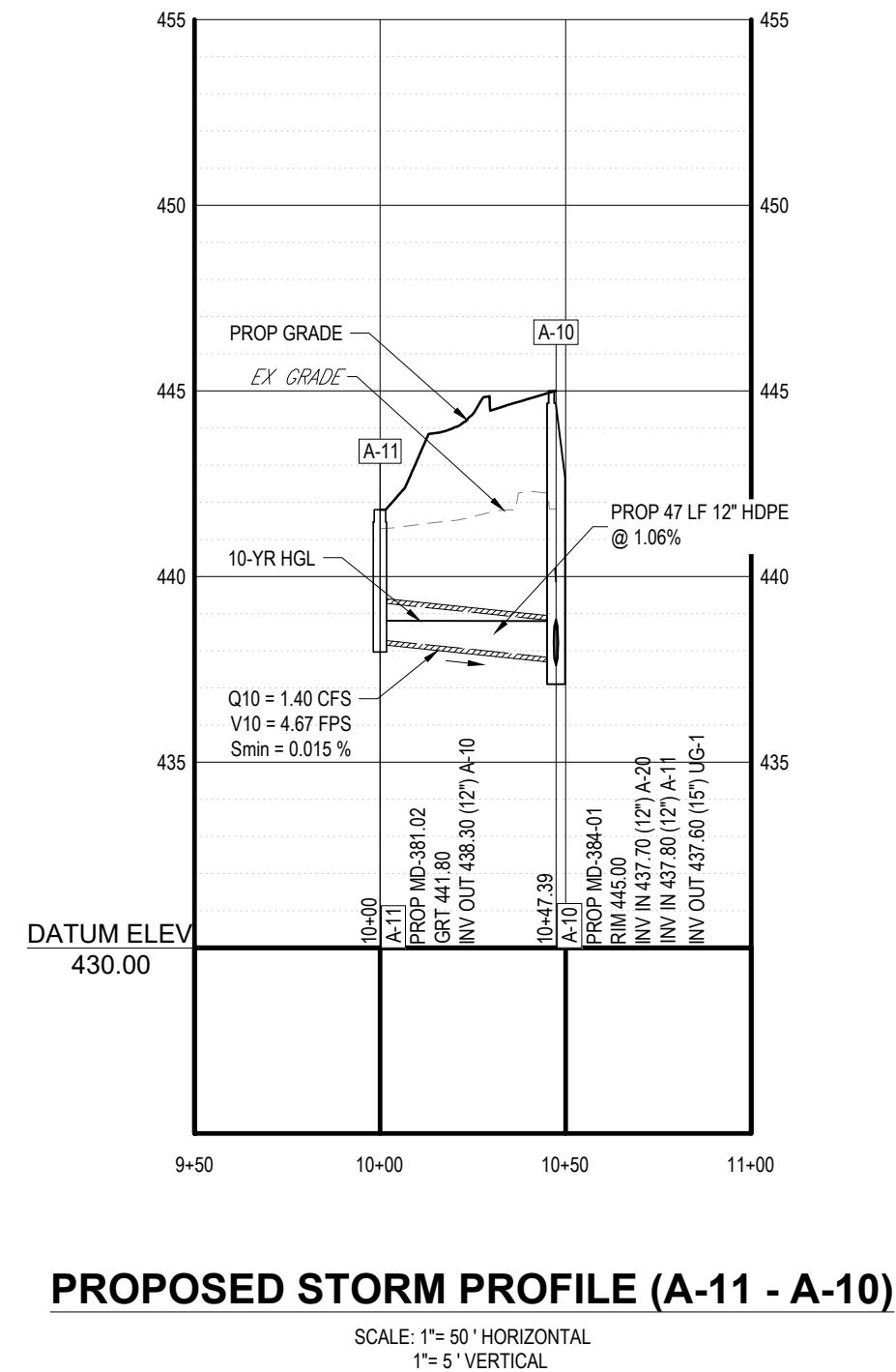
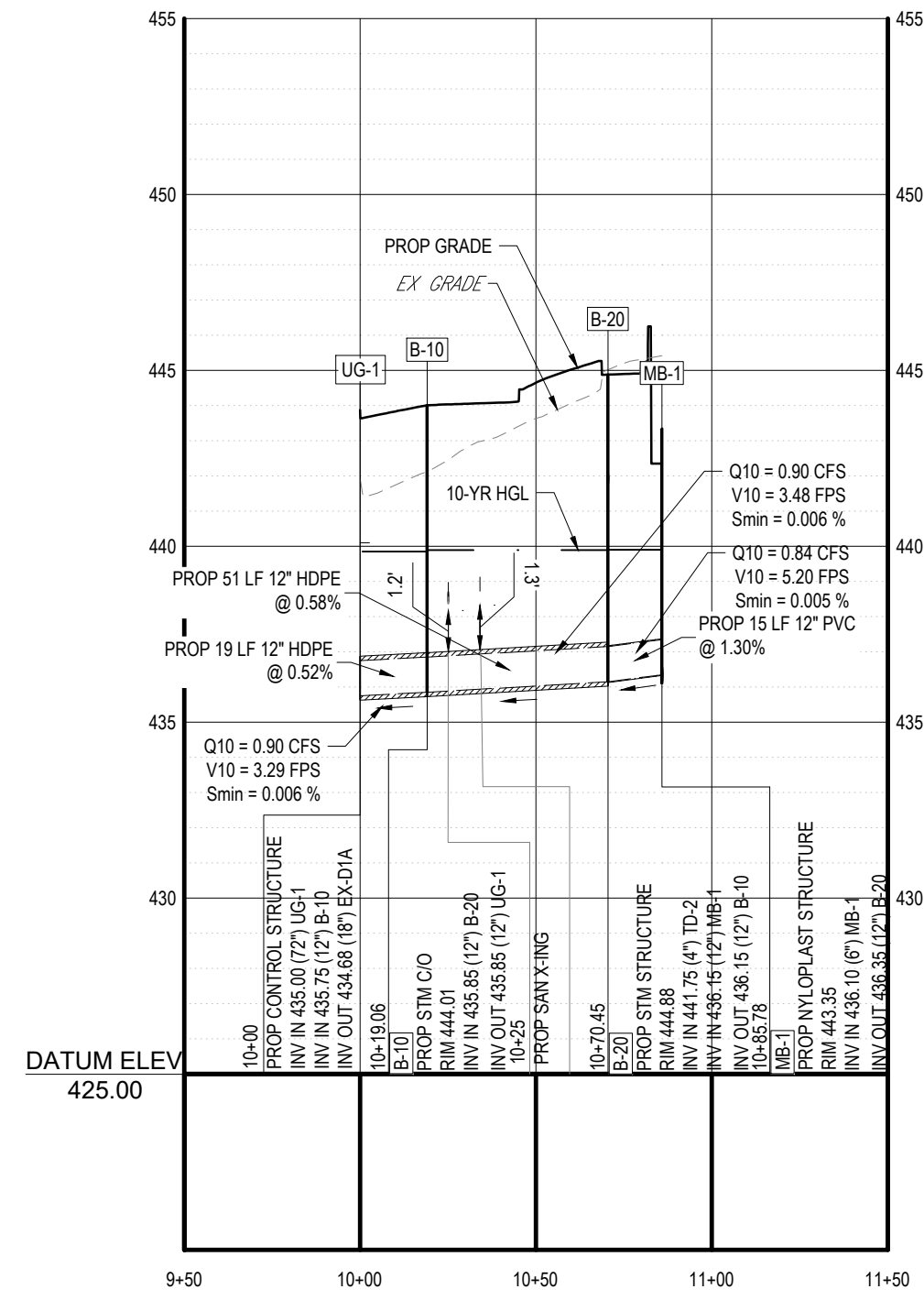
SHEET TITLE:  
**PRELIMINARY STORM DRAIN DRAINAGE AREAS**

SHEET NUMBER:  
**11**

REVISION 3 - 04/22/2025

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APR 21, 2025 11:02:25 MDA230909.00 CAD DRAWINGS PLAN SET SCHEMATIC DEVELOPMENT SITE PLAN CIVIL GRAD MDA230909.00-0A LAYOUT 11 - STORM DRAIN



PIPE		AREA		R=C	AR	ΣAR	TC (MIN)	I (IN/HR)	Q (CFS)	PIPE SIZE (INCHES)	PIPE MATERIAL	MANNING'S COEFFICIENT	DESIGN SLOPE (%)	MIN SLOPE (%)	V (FPS)	PIPE LENGTH (FT)	TIME IN PIPE (MIN)	DS INV.	US INV.	US RIM EL.	H <sub>f</sub> FRICTIONAL HEADLOSS	K <sub>b</sub>	DS STRUCTURE TYPE	DS STRUCTURE ANGLE	H <sub>s</sub> STRUCTURE HEADLOSS	DS HGL EL.	US HGL EL.
FROM	TO	INCR. AREA	TOTAL AREA																								
A-60	A-50	0.39	0.39	0.63	0.25	0.25	10	5.85	1.45	12	HDPE	0.013	1.78%	0.016%	6.06	45.06	0.12	438.50	439.30	443.80	0.007	0.22	BEND	76	0.125	440.43	440.44
A-50	A-40	0	0.39	0.00	0.00	0.25	10.12	5.85	1.45	12	HDPE	0.013	0.64%	0.016%	3.64	31.25	0.14	438.30	438.50	444.46	0.005	0.10	BEND	20	0.021	440.30	440.30
A-40	A-30.5	0	0.44	0.00	0.00	0.29	10.27	5.85	1.71	12	HDPE	0.013	0.66%	0.022%	3.70	30.20	0.14	438.10	438.30	444.96	0.007	0.08	BEND	15	0.017	440.27	440.28
A-30.5	A-30	0	0.45	0.00	0.00	0.30	10.40	5.85	1.76	12	HDPE	0.013	0.66%	0.024%	3.70	30.20	0.14	437.90	438.10	445.91	0.007	0.08	BEND	16	0.017	440.25	440.25
A-30	A-20	0	0.49	0.00	0.00	0.33	10.54	5.85	1.92	12	HDPE	0.013	0.75%	0.028%	3.93	13.37	0.06	437.80	437.90	445.15	0.004	0.03	BEND	5	0.007	440.23	440.23
A-20	A-10	0	0.51	0.00	0.00	0.35	10.60	5.85	2.03	12	HDPE	0.013	1.14%	0.031%	4.86	8.75	0.03	437.70	437.80	445.05	0.003	0.96	MH	83	0.352	440.22	440.22
A-10	UG-1	0	0.79	0.00	0.00	0.56	10.63	5.85	3.28	15	HDPE	0.013	1.11%	0.025%	5.57	53.92	0.16	437.00	437.60	445.00	0.013	0.15	MH	0	0.072	439.85	439.86
A-11	A-10	0.28	0.28	0.77	0.22	0.22	7	6.52	1.40	12	HDPE	0.013	1.06%	0.015%	4.67	47.39	0.17	437.80	438.30	441.80	0.007	0.15	MH	0	0.051	438.80	438.81
MB-1	B-20	0.14	0.14	0.85	0.12	0.12	5	7.07	0.84	12	PVC	0.013	1.30%	0.005%	5.20	15.33	0.05	436.15	436.35	444.88	0.001	0.01	BEND	0	0.004	439.90	439.90
B-20	B-10	0	0.15	0.00	0.00	0.13	5.05	7.07	0.90	12	HDPE	0.013	0.58%	0.006%	3.48	51.39	0.25	435.85	436.15	444.88	0.003	0.20	BEND	65	0.038	439.89	439.89
B-10	UG-1	0	0.15	0.00	0.00	0.13	5.30	7.07	0.90	12	HDPE	0.013	0.52%	0.006%	3.29	19.06	0.10	435.75	435.85	444.01	0.001	0.01	BEND	0	0.002	439.85	439.85



**REVISIONS**

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3	04/22/2025	REV. PER CITY'S COMMENTS	AD	BK



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CHECKED BY: BK  
DATE: 07/19/2024  
CAD ID: P-CIVIL-GRAD

PROJECT:  
**SCHMATIC DEVELOPMENT SITE PLAN**  
FOR  
  
PROPOSED DEVELOPMENT  
10099 FIELDS ROAD  
GAITHERSBURG, MD 20878  
CITY OF GAITHERSBURG  
PARCEL C, BLOCK A,  
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SHEET TITLE:  
**PRELIMINARY STORM DRAIN PROFILES**

SHEET NUMBER:  
**12**

REVISION 3 - 04/22/2025

APR 21, 2025 11:02:23 MDA230090.00\CAD\DRAWINGS\PLAN SET\SCHMATIC DEVELOPMENT SITE PLAN\PROP CIVIL GRAD MDA230090.00-1A-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000

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