ANEJA RESEARCH FOUNDATION
Bareilly, Uttar Pradesh, India | Est. 2026

Why Does Bareilly Flood?

A Systemic & Field-Evidence Analysis of Urban Drainage Failure

Focus Area: Model Town, Bareilly

Report Type	City	Researcher	Field Date
Hybrid (Macro + Micro)	**Bareilly, U.P.**	**Chanpreet Singh Aneja, Mantra Maheshwari**	**April 2026**

KEY FIELD FINDINGS — MODEL TOWN DRAINAGE

~25 cm	Med–High	~10 cm	4–6×/yr	REACTIVE
Drain Width	Blockage Level	Water Depth	Cleaning Frequency	Maintenance Mode

Case Study #2 | April 2026

> ***"Problems are symptoms. Systems are the disease. Fix the system, cure the problem."***
>
> *— ARF Research Philosophy*

ANEJA RESEARCH FOUNDATION
Case Study #2 | Why Does Bareilly Flood?

Executive Summary

Based on field observations conducted at Model Town, Bareilly — a gated residential colony bounded by macadamised arterial roads — ARF identifies a compound drainage failure driven by three interlocking system failures: a blocked and structurally damaged open drain of approximately 25 cm width, a road-elevation mismatch that traps water inside the colony like a basin, and a maintenance regime that is reactive rather than preventive, with cleaning occurring only 4–6 times per year exclusively after repeated citizen complaints to Nagar Nigam.

Field photographs document standing water on colony roads, cracked and structurally compromised drain edges, road surface erosion from repeated water exposure, and spillover of drainage water onto the carriageway. Testimonial evidence from a local shopkeeper operating since 1992 confirms that the flooding situation has remained materially unchanged for decades — indicating systemic entrenchment, not a temporary or recent failure.

These micro-level findings are the ground-level expression of three city-wide failure modes that ARF identifies as common across Bareilly's older residential colonies: inadequate and unmaintained drainage infrastructure, a pattern of road resurfacing that raises external road levels without proportional adjustment of internal drainage channels, and a governance model that responds to crises rather than preventing them.

> ***"Model Town is not a uniquely waterlogged colony. It is a perfectly normal Bareilly colony — and that is precisely the problem."***

ARF's recommendations are structured at two levels: colony-specific drainage interventions that can begin immediately at low cost, and city-wide systemic reforms that address the root causes of Bareilly's persistent waterlogging. Both levels are required. Clearing one drain without fixing the elevation mismatch will produce seasonal relief. Governance reform without fixing the drain leaves residents without immediate improvement.

Key Findings at a Glance

#	Finding	Severity	Category
F1	Colony acts as trapped basin — elevated surrounding roads prevent water outflow	CRITICAL	Drainage Design
F2	Drain width ~25 cm — structurally inadequate for peak rainfall load	HIGH	Infrastructure
F3	Medium–high blockage confirmed — effective capacity near zero during rain	HIGH	Maintenance
F4	Drain edges visibly cracked and structurally compromised	HIGH	Structural
F5	Water overflows drain boundary onto road surface — confirmed by field observation	HIGH	Overflow
F6	Maintenance cleaning only 4–6 times per year — reactive, not preventive	HIGH	Governance
F7	Road surface erosion and unevenness from repeated water exposure	MEDIUM	Road Condition

Methodology — The ARF Research Framework

ARF operates on a single foundational belief: that urban problems are not random events. They are the predictable outputs of systems. To study them rigorously, ARF uses a structured methodology that combines macro-level systemic analysis with micro-level field evidence. This report is the second application of that methodology.

The ARF Method

🔎 **OBSERVE**	Identify a real-world urban problem through direct experience — not from a textbook or secondary account. At the macro level, this means identifying city-wide patterns. At the micro level, it means visiting a specific location and observing drainage infrastructure, water behaviour, and resident testimony.
🔗 **TRACE**	Map the system behind the problem. Who maintains the drain? What is the road-level policy? Where does governance break down? The goal is not to describe the problem but to understand its upstream causes — the policy decisions, budget allocations, and maintenance failures that made the problem inevitable.
📊 **ANALYSE**	Apply data to the traced system. At the macro level, this includes urban planning literature, Nagar Nigam maintenance records, and policy documents. At the micro level, this means original field measurement: drain dimensions, blockage levels, water depth, road elevation differences, and photographic documentation.
📋 **PRESCRIBE**	Write clear, realistic, implementable recommendations. ARF prescriptions are always layered — from low-cost immediate fixes to medium-term interventions to long-term structural reforms. Recommendations must be politically feasible, not merely theoretically optimal.

PART A — MACRO ANALYSIS — BAREILLY CITY LEVEL

Macro Analysis — Bareilly City Level

This section establishes the city-wide systemic context within which the Model Town drainage findings are situated. The three failure domains identified here — drainage infrastructure design, maintenance governance, and road-level policy — are not independent. They form an interlocking system where each failure reinforces the others.

M1 — Inadequate Drainage Infrastructure

Pattern: Infrastructure sized for a smaller city, never upgraded for today's rainfall load

Bareilly's open drain network was designed for a population density and impervious surface area that no longer reflects the city's reality. As the city expanded to approximately 25 lakh residents, the proportion of impervious surface — concrete roads, paved courtyards, rooftops — increased dramatically. Rainwater that would previously have percolated into soil now flows directly into drainage channels. Yet the drainage channels themselves — in older residential colonies like Model Town, DD Puram, and the old city core — have not been proportionally upgraded.

📊 Data Snapshot — City-Wide Drainage Infrastructure Failures

• Undersized drains: open channel drains in residential colonies sized for 1970s–80s population, not current impervious cover

• No flow hierarchy: neighbourhood drains, colony boundary drains, and arterial storm drains operate without designed gradient handoffs

• Missing covered drains: open drains accumulate solid waste rapidly, reducing effective cross-section

• Elevation mismatches: repeated road resurfacing raises external road levels without compensatory lowering of internal drain inverts

• Encroachment on drainage corridors: drains in some areas have been narrowed or covered informally without engineering approval

The government has responded with periodic drain-cleaning drives and the Smart City drainage upgrades in selected zones. However, these interventions are spatially concentrated in commercial and high-visibility areas. Residential colonies — particularly mid-income gated colonies like Model Town — sit in a governance gap: they are too formally structured to qualify for ad hoc emergency works, but too low-profile to attract capital investment.

M2 — Road Resurfacing Without Drainage Coordination

Pattern: Every road resurfacing cycle raises the road, but the drain stays at the same level

Bareilly's roads are resurfaced periodically under PWD and Nagar Nigam maintenance programmes. Each resurfacing cycle adds a layer of bitumen or concrete, incrementally raising the road surface level. Over decades, arterial roads surrounding older colonies have risen by an estimated 15–30 cm relative to their original levels — while the internal drainage systems of those colonies remain at their original construction levels.

🔴 The Elevation Trap — How Resurfacing Creates Flooding

Original state (1980s): Road surface level ≈ Colony internal level → water drains outward naturally

After 10–15 years of resurfacing: External road rises 5–10 cm → drainage efficiency falls

After 30–40 years of resurfacing: External road rises 15–30 cm → colony becomes a basin

During rainfall: Water enters colony, cannot exit over raised road boundary → stagnates

Result: A design problem masquerading as a maintenance problem

This is not a failure unique to Model Town. It is a city-wide pattern that affects every older gated colony in Bareilly whose surrounding roads have been resurfaced multiple times without compensatory drainage adjustments. The fix requires inter-agency coordination between PWD (roads) and Nagar Nigam (drains) — coordination that does not currently exist in practice.

M3 — Governance Failure: Reactive Maintenance

Pattern: Drains are cleaned when citizens complain, not when blockage data demands it

Bareilly's drain maintenance system operates on a complaint-response model. Nagar Nigam dispatches cleaning trucks when a sufficient volume of resident complaints reaches the ward-level officer. This model has three structural flaws: it systematically under-serves areas with low complaint rates (often the most marginalised residents), it rewards political connections over technical need, and it fails entirely during the pre-monsoon window when proactive cleaning would be most valuable.

📋 The Policy Gap — Maintenance Governance

• No scheduled preventive maintenance calendar: drain cleaning is not tied to a seasonal or calendar-based schedule

• No drain condition database: Nagar Nigam does not maintain digitised records of drain dimensions, blockage history, or structural condition

• Inter-agency fragmentation: drain maintenance (Nagar Nigam), road levels (PWD), and colony entry infrastructure (private RWA) have no coordination mechanism

• Complaint-driven model: cleaning depends on resident activism — systematic areas with lower social capital receive proportionally less maintenance

• No post-monsoon damage assessment protocol: structural drain damage caused by flooding is not systematically inspected or logged

PART B — MICRO ANALYSIS — MODEL TOWN FIELD STUDY

Micro Analysis — Model Town, Bareilly

This section presents original primary field observations collected at Model Town, Bareilly — a gated residential colony in the MacNair Road / Civil Lines corridor. Observations were conducted during April 2026. All data is first-hand. Photographic and testimonial evidence is embedded below.

B1 — Location Context & Drainage Profile

Why this location was selected

Model Town is a representative mid-income gated residential colony in the MacNair Road area of Bareilly. It is surrounded on all sides by arterial roads that have been resurfaced multiple times over the past three to four decades. This makes it a textbook case of the elevation-trap phenomenon described in M2: a colony whose internal drainage level has not kept pace with the rising external road surface, creating a basin-like condition where rainwater cannot exit efficiently.

Parameter	Recorded Detail
Location Name	Model Town, Bareilly, Uttar Pradesh
GPS — Primary Point	28.37472° N, 79.43171° E
GPS — Secondary Point	28.37409° N, 79.43227° E
Colony Type	Gated Residential Colony — mid-income
Observation Type	Post-construction drainage failure + chronic waterlogging
Surrounding Roads	Arterial macadamised roads — elevated by repeated resurfacing
Weather Context	Dry weather observation; rain events referenced via testimonial
Observer	Chanpreet Singh Aneja, Founder — ARF ; Mantra Maheshwari —- Data Analyst

B2 — Drain Condition Assessment

Physical measurements and structural observations

Metric	Recorded Value	Benchmark / Reference
Drain channel type	Open channel drain	—
Estimated drain width	~25 cm	Minimum 40–50 cm recommended for residential colony drains serving 50+ households
Blockage level (estimated)	Medium to High	>50% blockage significantly reduces effective capacity
Water depth observed	~10 cm	Stagnant water at observation time — dry weather conditions
Flow condition	Ineffective / Restricted	No observable directional flow during observation
Water entry into drain	Partial to minimal	Water spilling over drain edges onto road surface confirmed
Drain edge structural condition	Cracked and damaged	Structural failure accelerates blockage and overflow
Last visible cleaning evidence	Unknown / Not recent	No desilting spoil or disturbed sediment visible at observation
Cleaning frequency (testimonial)	4–6 times per year	Recommended: Pre-monsoon + monthly during monsoon season
Maintenance trigger	Complaint-reactive only	Recommended: Scheduled preventive + post-rain assessment

⚠ **Finding B2-1 —** A drain width of ~25 cm is structurally inadequate for serving a residential colony of Model Town's scale. Standard urban drainage guidance recommends a minimum 40–50 cm channel width for colony-level open drains. The current drain is running at less than 60% of recommended minimum — before accounting for blockage reduction.

⚠ **Finding B2-2 —** Medium–high blockage combined with structural edge damage means the drain's effective drainage capacity during a rainfall event approaches zero. Water does not drain — it accumulates until it overflows the drain boundary and spreads across the road surface.

B3 — Qualitative Observations

Direct field observations — Model Town drainage zone

Field Observations — 5 Primary Evidence Points

1. Drain edges are visibly cracked and structurally damaged — indicating long-term neglect and probable undermining by repeated water exposure

2. Water is not being contained within drainage lines and is actively spilling onto the road surface — observed in dry weather, implying permanent overflow condition

3. Road surface shows erosion and unevenness — indicating repeated water exposure over an extended period, consistent with decades-long drainage failure

4. Stagnant water observed near residential and parking areas — creating vehicle damage risk, pedestrian hazard, and mosquito breeding conditions

5. Improper transition between paved and unpaved surfaces leads to water dispersion rather than directed flow — no designed drainage gradient observable

B4 — Testimonial Evidence

Source: Local shopkeeper, operating since 1992

🗣️ Testimonial — Key Observations (32+ years of local knowledge)

• Flooding situation has remained largely unchanged for decades — no structural improvement since at least the 1990s

• Drainage infrastructure has been severely damaged for a long time — not a recent deterioration event

• Cleaning depends entirely on manual intervention via Nagar Nigam trucks — no automated or gravity-driven solution in place

• Cleaning occurs only 4–6 times per year — well below the minimum required for effective monsoon management

• Cleaning is reactive and complaint-driven — it happens only after repeated resident complaints to Nagar Nigam, not on a planned schedule

⚠ **Finding B4-1 — Testimonial Significance —** A 32-year continuous observation period from a single source confirms this is not a recent or cyclical failure. The drainage system has been structurally inadequate and poorly maintained for at least three decades. This is systemic entrenchment, not a maintenance backlog.

B5 — Field Photographic Evidence

Captured: April 2026 | Model Town, Bareilly

Fig 1 *— DPS school bus navigating deteriorated road surface adjacent to Model Town. Gravel displacement and road surface failure visible — consistent with long-term water damage to the road base.*

Proves: *Active road surface degradation from drainage overflow; large vehicles navigating damaged road confirm the scale of infrastructure failure.*

Fig 2 *— Stagnant drainage water pooling beneath and around parked vehicles in residential areas. Dark water colour indicates contamination — probable sewage mixing with surface drainage.*

Proves: *Stagnant water in dry weather conditions confirms permanent overflow condition, not storm-event flooding. Drainage system provides no containment.*

Fig 3 — Close-up of drain boundary: cracked and structurally compromised edge, with water pooling at the paved/unpaved surface transition. Drain unable to contain or direct water flow.

Proves: *Structural drain failure confirmed. Cracked edges, water spillover, and absence of directional flow demonstrate that blockage is compounded by physical infrastructure collapse.*

📷 What the Photographs Document

• Road surface failure: Photo 1 confirms advanced road deterioration consistent with years of water exposure — this is not minor potholing but base-layer failure

• Permanent overflow condition: Photo 2 shows stagnant water during dry weather — drainage is not failing during storms; it is failing continuously

• Structural drain collapse: Photo 3 confirms that drain edges are physically breaking down — cleaning alone cannot restore a structurally compromised drain

• Vehicle and pedestrian hazard: All three photographs together document a multi-category public safety failure — road, drainage, and access safety are simultaneously compromised

B6 — Failure Classification

Three-tier failure hierarchy

Tier	Failure Type	Evidence at Model Town
PRIMARY	**Maintenance Failure**	Medium–high blockage confirmed Cleaning only 4–6 times/year — reactive, not preventive
SECONDARY	**Structural / Design Failure**	Surrounding roads elevated — colony acts as trapped basin Drain edges cracked and structurally compromised Poor slope and no designed drainage gradient
TERTIARY	**Governance Failure**	Infrequent and complaint-driven cleaning schedule No inter-agency coordination between PWD and Nagar Nigam No drain condition database or structural inspection protocol

PART C — SYNTHESIS — THE SYSTEM AT WORK

Synthesis — How the System Fails at Model Town

The Model Town field data is not a standalone finding. It is the ground-level expression of every macro-level failure identified in Part A. The table below maps each city-wide systemic failure to its specific field evidence at Model Town — demonstrating that the colony is not an anomaly but a specimen.

> ***"Every problem visible in an afternoon at Model Town was created upstream — by policies not enforced, road programmes not coordinated, and drains not maintained."***

Macro Failure (Part A)	Field Evidence at Model Town (Part B)	Finding Ref.
Undersized drainage infrastructure	Drain width ~25 cm — below minimum recommended for colony-level drainage; confirmed inadequate for current demand	B2-1, B2-2
Road resurfacing elevation mismatch	Colony surrounded by elevated arterial roads — functions as a trapped basin during rainfall events; no designed outflow path available	B1, M2
Structural drain degradation	Drain edges cracked and damaged; water spillover onto road surface confirmed in dry weather — permanent overflow condition	B2-2, B3
Reactive maintenance governance	Cleaning only 4–6 times/year on complaint basis; 32-year testimonial confirms no structural improvement since 1990s	B4-1, M3
Absence of drain condition data	No evidence of formal structural inspection; damage extent not mapped or monitored by Nagar Nigam	M3, B4-1
Inter-agency coordination failure	Road levels (PWD) and drain maintenance (Nagar Nigam) operate independently — elevation mismatch a direct consequence	M3
Economic impact on local commerce	Shopkeeper testimony confirms reduced footfall and disrupted sales during rainfall events — recurring, not one-off	B4-1, D1

Economic Impact Analysis

How drainage failure translates into commercial loss

Waterlogging in Model Town is caused by a compound system failure. The consequences extend beyond physical infrastructure damage to measurable economic harm at the local commercial level.

💰 Commercial Impact — Documented Pattern

During heavy rainfall events, local businesses experience reduced customer access due to waterlogged roads and poor mobility conditions.

This leads to:

- Decreased footfall — customers actively avoid entering flooded streets, particularly where water depth and road damage create access barriers
- Disruption in daily sales — short-term but recurring revenue loss during each significant rainfall event
- Temporary closure or reduced operating hours — business decisions forced by physical inaccessibility rather than commercial choice

Observed Pattern: Customers avoid entering flooded streets, especially when water depth and road damage create accessibility issues.

Nature of Loss: Short-term but recurring economic disruption. Each monsoon season compounds cumulative business impact.

Source: Local shopkeeper, operating continuously since 1992.

🔄 The Vicious Cycle — How Drainage Failure Creates Its Own Compounding Effect

Undersized / blocked drain + elevated surrounding roads

↓

Rainwater trapped inside colony — no outflow path

↓

Road surface repeatedly submerged → erosion → base-layer failure

↓

Damaged road increases vehicle and pedestrian risk → reduced access

↓

Commercial activity disrupted → local economic loss

↓

Drain edges weaken further from water pressure → structural failure deepens

↓

Cycle repeats and worsens with each monsoon season

PART D — RECOMMENDATIONS — COLONY-LEVEL & CITY-LEVEL

ARF Policy Recommendations

ARF recommendations are structured at two geographic scales and three implementation levels. The two scales are: (1) Model Town Colony — specific interventions that can be actioned by Nagar Nigam and PWD without large capital expenditure; and (2) Bareilly City — systemic reforms that address the root causes identified in Part A. Both scales are necessary. Neither alone is sufficient.

D1 — Colony-Level Recommendations: Model Town

Actioning body: Nagar Nigam Bareilly + PWD Bareilly

Level	Timeframe	Recommendation	Expected Impact
Level 1	0–3 months	Emergency drain desilting: complete blockage removal from entire Model Town drain network. Do not defer to monsoon season — pre-monsoon cleaning is the only cost-effective intervention window.	Restores partial drainage capacity before peak rainfall load; reduces overflow volume
Level 1	0–3 months	Structural inspection of all drain edges and channel walls within colony boundary. Map all crack locations. Document damage severity. This is data collection, not repair — and it is required before any repair can be designed.	Produces a damage inventory — prerequisite for all subsequent structural work
Level 1	0–3 months	Temporary drainage outlet: assess feasibility of a low-cost temporary pump or gravity channel to drain accumulated water during rainfall events while permanent solution is designed.	Provides immediate flood relief before structural works can be completed
Level 2	3–9 months	Drain reconstruction: replace structurally compromised drain sections with new reinforced channel, sized to minimum 40–50 cm width. Design must account for current — not 1980s — impervious surface area.	Restores designed drainage capacity; eliminates structural overflow failure
Level 2	3–9 months	Road level assessment: survey elevation difference between colony internal level and surrounding external roads. Prepare technical note quantifying elevation mismatch and identify lowest-cost outflow options.	Provides engineering data for deciding between: (a) road lowering, (b) pump station, or (c) designed overflow channel
Level 2	3–9 months	Establish scheduled maintenance: quarterly drain cleaning with pre-monsoon priority cycle (May), post-monsoon assessment (October). Document each cleaning event with date, volume removed, and condition notes.	Converts from reactive to preventive maintenance; creates accountability record
Level 3	9 months+	Elevation solution: based on survey findings, implement the appropriate permanent solution — either external road lowering at colony entry points,	Eliminates the trapped-basin condition permanently

		or installation of a small pump station to lift colony water over the road boundary.	

D2 — City-Level Recommendations: Bareilly

Actioning body: Nagar Nigam + PWD + State Government

Level	Timeframe	Recommendation	Addresses
Level 1	0–6 months	Pre-monsoon drain desilting campaign across all residential colonies: not just high-complaint areas, but all mapped drain networks. Completion by 15 May annually.	Maintenance Failure
Level 1	0–6 months	Road-drain elevation audit: PWD and Nagar Nigam jointly survey top 20 high-flooding residential colonies to quantify road level vs internal drain level differential.	Design Failure, Inter-agency
Level 2	6–18 months	Create a Drain Condition Database: digitise all drain dimensions, material type, last inspection date, blockage history. Integrate with Nagar Nigam ward-level maintenance planning.	Governance, Data
Level 2	6–18 months	Mandatory drainage impact assessment for all road resurfacing projects: before any road is resurfaced adjacent to a residential colony, a drainage elevation check is required.	Design Failure, Prevention
Level 2	6–18 months	Scheduled preventive maintenance policy: all colony-boundary drains to be cleaned minimum twice pre-monsoon, twice during monsoon, once post-monsoon. Schedule published and auditable.	Maintenance Governance
Level 3	18 months+	Colony Drainage Upgrade Programme: systematic reconstruction of undersized colony drains across Bareilly, prioritised by flood severity and population affected. Funded under AMRUT or Smart City Mission.	Infrastructure
Level 3	18 months+	Establish Urban Drainage Cell: dedicated unit within Nagar Nigam with drainage engineer, maintenance planner, and data officer. Monthly KPI reporting and public dashboard.	Governance, All domains

Conclusion

Model Town is not a uniquely waterlogged colony. It is a textbook example of what happens when a city's infrastructure maintenance systems, road construction planning, and drainage governance fail simultaneously at a single location. Every problem observed in one afternoon of field observation has a traceable systemic cause. Every systemic cause has a known, implementable fix.

The drain that overflows is not a data point in isolation — it is a drainage channel sized for a 1980s population load, blocked by decades of inadequate maintenance, whose structural edges have collapsed under repeated water pressure. The road that floods is not a random event — it is the predictable consequence of a colony whose surrounding roads have been raised 15–30 cm over four decades while internal drainage levels remained unchanged. The shopkeeper who loses sales every monsoon is not an unfortunate statistic — they are the citizen absorbing the economic cost of a governance failure that has continued unchanged for more than 30 years.

For the general reader: this colony is fixable. Emergency desilting before monsoon, a structural inspection, and a scheduled maintenance calendar would produce visible improvement within one season. For the municipal official: road resurfacing without a drain elevation check is not a maintenance programme — it is a slow-motion flooding policy. For the researcher: this report is ARF's second application of its hybrid methodology. The same framework can be applied at any waterlogged colony, any blocked drain, in any Tier-2 city in India.

> ***"Fix the system. The drain will follow."***
>
> *— ARF Research Philosophy*

About Aneja Research Foundation

ARF is a solo research initiative founded by Chanpreet Singh Aneja to study how real-world urban problems actually work — beyond what textbooks teach. ARF operates on the belief that the problems citizens face are created by systems, and that fixing systems, not symptoms, is the only lasting path to better cities.

Focus Areas: Urban Policy | City Infrastructure | Public Behaviour | Tier-2 Indian Cities

APPENDIX — ARF JUNCTION / DRAIN OBSERVATION SHEET (TEMPLATE)

Appendix — ARF Drain Observation Sheet (Template)

This is the standard ARF field data collection template for drainage observations. Print and carry to any location. Fill in pen. Transfer data to report upon return.

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Drain Observation Sheet | Field Template v1.0

Field Entry

Location Name	
GPS Coordinates	
Date of Observation	
Time Window	
Weather Conditions	
Observer Name	

A. Drain Condition Assessment

Metric	Value	Notes
Drain channel type	____	
Estimated drain width (cm)	____	
Blockage level (Low / Med / High)	____	
Water depth (cm)	____	
Flow condition	____	
Water entry into drain	____	
Drain edge condition	____	
Last cleaning evidence	____	

B. Qualitative Observations

1. ____
2. ____
3. ____
4. ____
5. ____

C. Conflict / Failure Mapping

Failure Type Observed	Y / N	Severity	Notes
Overflow onto road surface	Y / N	H / M / L	
Cracked drain edges	Y / N	H / M / L	
Elevation mismatch visible	Y / N	H / M / L	
Stagnant water (dry weather)	Y / N	H / M / L	
Surface erosion near drain	Y / N	H / M / L	
Improper paved/unpaved transition	Y / N	H / M / L	
Evidence of recent cleaning	Y / N	H / M / L	
Other (describe):	Y / N	H / M / L	

D. Physical Infrastructure Check

Element	Status
Drain channel visible and accessible?	YES / NO / PARTIAL
Drain edge structurally intact?	YES / NO / PARTIAL
Road level higher than colony level?	YES / NO / PARTIAL
Formal outflow path exists?	YES / NO / PARTIAL
Evidence of maintenance schedule?	YES / NO / PARTIAL
Enforcement / supervision present?	YES / NO / PARTIAL

E. Condition Notes

Unusual events during observation	
Overall drainage failure rating (1=functional, 5=non-functional)	____ / 5
Key observation not captured above	
Map / photograph attached?	YES / NO

F. Sketch / Map Reference

[Map / Sketch Attachment Point — paste GPS screenshot or draw colony drainage geometry here]

ARF Drain Observation Sheet v1.0 | Aneja Research Foundation | Bareilly, U.P. | 2026